

Flight, February 18, 1911.

FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

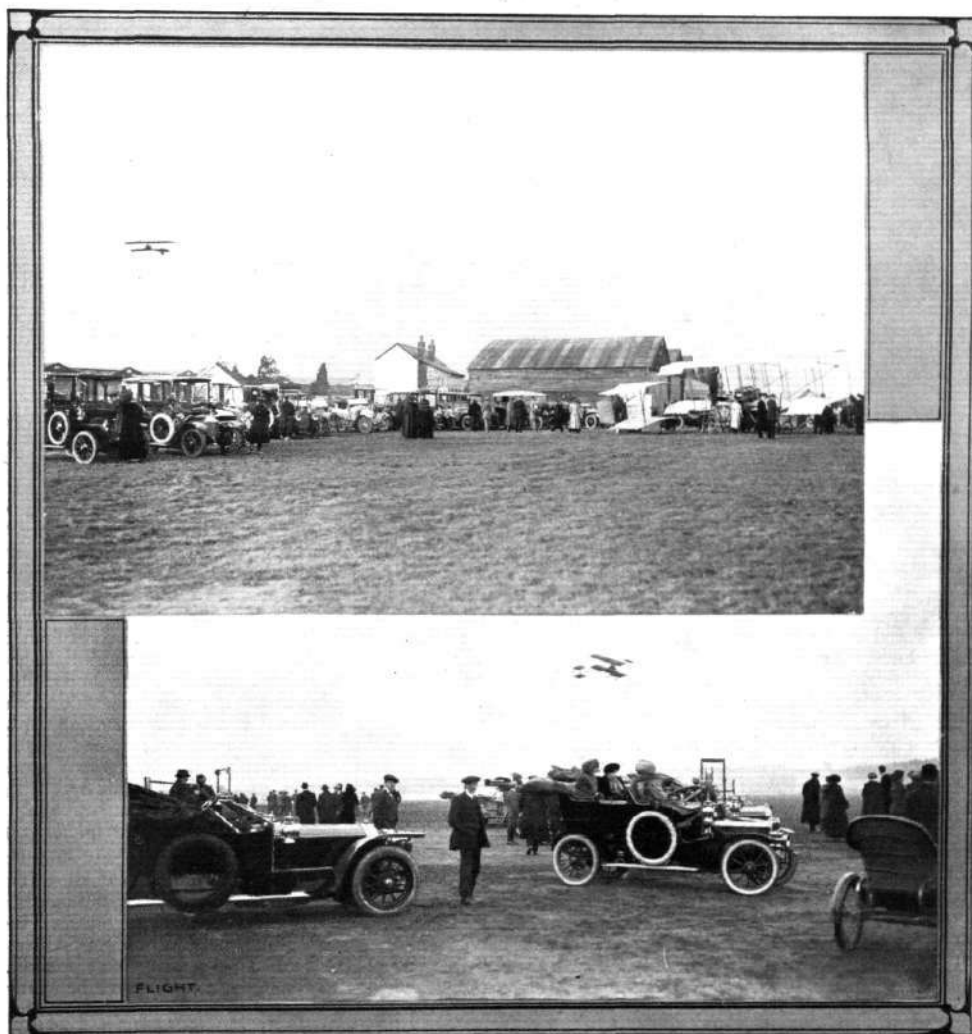
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CARS AND FLYING AT BROOKLANDS.—Brooklands has now become quite a centre of activity by reason of the flying attractions daily in operation there. Two pictures, taken on Saturday last, above give some idea of the gatherings which assemble day by day around the actual flying village. In the upper photograph Mr. Tom Sopwith is flying his E.N.V.-engined Howard Wright biplane, one of the very successful Bristol machines being seen to the right. In the bottom picture Mr. Low, one of the expert pilots of the Bristol Co., is making one of his fine flights round the aerodrome.

STATE AID IN DEVELOPMENT.

WE British are indeed a people whose comings in and goings forth are regulated not so much by laws written or unwritten as by a fetish more unchangeable than the laws of the Medes and Persians, which everyone knows were immutable. Precedent is the name of the fetish, and without consulting the potent oracle it is impossible to move, at least in any official manner. In an age and in a country which is ruled by precedents, as this land unquestionably is, it is a matter for constant wonder that at any time in past history anyone was ever found bold enough to take the initial step which created that valuable thing, a precedent. Perhaps it is that in days gone by the ancestors had more of the spirit of initiative than is now possessed by their descendants—though as an hypothesis it must be confessed this does not appear any too convincing, and it seems preferable to believe that the reliance which is placed in the guidance of the precedents is simply due to an innate feeling that so to rely upon them must make for continuity of policy as contradistinct from confusion. From that point of view there is perhaps a good deal to be said for respect of precedent. It is, however, like the elaborate systems which have been so largely introduced into business life of recent years—excellent so long as it is subordinated to the interests of the concern as a whole, but utterly to be deprecated when it becomes dignified into the position of the ruling partner.

These preliminary reflections are brought about by a recollection of the French regulations now in force for the subvention of industrial vehicles. Doubtless the reader will wonder what is the connection between industrial motor vehicles and the interests with which this journal is identified. If he will but have patience we will endeavour to trace the analogy for him. It is not necessary to elaborate the details of the French scheme, farther than to say that in France most substantial financial help is provided for any owners of industrial vehicles of certain approved types, who are willing in times of national emergency to place them at the disposition of the State. A certain military grant is made at the time of purchase, and a further annual sum is paid towards maintenance provided certain not very onerous requirements meet with compliance. The vehicle must be maintained in a state of proper repair and efficiency and once a year it has to be submitted to the military authorities for the purpose of being put through a searching test—which is quite reasonable and proper. The funds to be applied to this most useful department of the public service are included in the appropriations for the army and are under the control of the Minister of War.

Now there is, of course, no precedent for such a system of subvention in this country, or rather there was not until a few weeks ago when the Government, realising that the supply of horses for army purposes was in grave danger of dropping to vanishing point, approved of a system of bounties in encouragement of horse-breeding which is not so very different, on broad principles, from the French plan just outlined. For the purposes of our argument the horse-breeding bounties may be treated as constituting a precedent of a kind that is sadly needed at the present time; and it is to be hoped that an enlightened administration may ere long point to it in justification of a fresh policy it may conceivably see fit to take concerning the motor vehicle, and, what concerns us more, the aeroplane.

More than once of late it has been publicly announced by Mr. Grahame-White that he had laid before the War Office and the Admiralty concrete plans for the formation of an aeroplane reserve, somewhat on the lines of what he had seen in being when in the United States in quest of the Gordon-Bennett Cup. No details of the scheme have yet been given, nor do they greatly concern us one way or another at the moment. What is of moment, however, is that if this country is not to be left behind in competition with other nations the State must come to the aid of the private experimenter in some way or another as effectually as is done abroad; and that, perhaps, the principal stumbling block that stands in the way may be that which we have been discussing earlier in this article—to wit precedent—or, perhaps, we should rather say the want of it. Who cannot imagine the fate of a requisition for money to be applied in aid of the private development of aerial science when it had first reached the Treasury? "Money to assist in developing the aeroplane?" "My Lords have never officially heard of the aeroplane, and besides there is no precedent for anything of the kind." It is in view of this more than possible attitude of those who control the public purse-strings that we have been at some pains to draw a moral or morals from the French industrial vehicle scheme, and from the comparatively new British system of horse-breeding bounties.

All reasonable folk are agreed as to the urgent necessity for this country to make strenuous efforts to get in front of rival nations in the development of aviation. For this there are many reasons, to say nothing of the alteration in the strategical position which the coming of the aeroplane is inevitably effecting. Great Britain has for so long led the van in the world's progress that for the sake of the national *amour propre* alone she ought to do all that in her lies to get in front and to keep there; while certain it is to all who know the basic facts that this object can only be attained if adequate State aid be speedily forthcoming. How can the State best aid apart from the organisation of competitions and the purchase of machines of the most successful types, as advocated by us lately when referring to the French programme for next autumn? It is quite obvious that public money cannot be forthcoming for the assistance of any and every inventor with a bee in his bonnet. Aid to practical flight is what is wanted, and how better can it be given than in the way of subventions along the French heavy vehicle lines, simply substituting "aeroplane" for "industrial vehicle"? Under such a system of subsidies, before long would spring into being a fleet of machines the owners and pilots developing into a corps of capable practical experimenters, each improving this detail or that of the machine itself, each contributing his quota to the sum total of home-acquired knowledge of the conditions of the air, and each at the call of the State in time of national need. It might be argued that all this will come in due course without the expenditure of the public money. But the mere fact that the State was showing an active interest in the science, and was evincing a disposition to give it sympathetic assistance would give the movement a strong impetus that would be vastly to the gain of the whole country. There is roughly the scheme—for the precedent there is the horse-breeding subsidy. Now it is for those who are interested in the progress of aviation, and who have influence in high places, to set about the conversion of the authorities.

FLIGHT PIONEERS.



CAPT. H. F. WOOD.

AEROPLANES IN NAVAL WARFARE.

By **CLAUDIO PIUMATTI** (Capitano del Genio Navale).

Translated from the "Rivista Marittima," by **COMMANDER R. H. KEATE, R.N.**

It is the purpose of this article to indicate the direction that our studies may profitably take as regards the following two problems, namely:—

1. Starting an aeroplane from the deck of a ship.
2. Bomb dropping on to the deck of a ship.

I.—Launching an Aeroplane from the Deck of a Ship.

If warlike operations are taking place at a great distance from the land, in order to increase the aeroplane's radius of action it will be

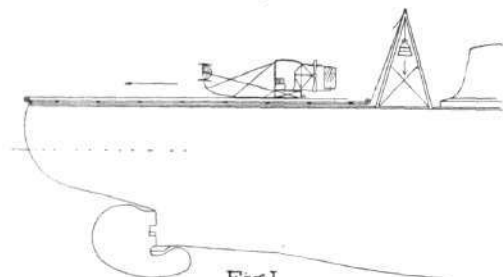


Fig. 1.

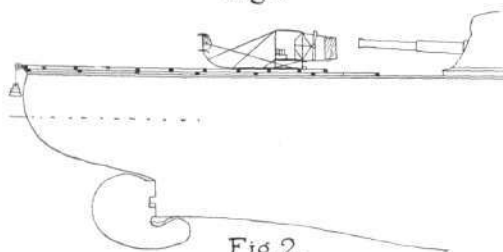


Fig. 2.

necessary to instal one or more aeroplanes on each war vessel, so that if the weather permits the aeroplane can be prepared on deck, and launched on its flight. Until the flying machine has succeeded

There are two ways in use. The French system, where the aeroplane is fitted with wheels, and on starting the engine it runs along, and when the speed is sufficient it rises. The American or Wright system where the aeroplane has skids which slide on a wooden guiding plane about 25 metres long; the screw not having sufficient power to raise the machine, the fall of a weight from the top of a pylon is brought into play to give the necessary extra impetus required. If the wind is contrary to the direction of flight the aeroplane before arriving at the end of the guiding plane soars upwards, but if there is no wind it is necessary to add the power of a falling weight equal to 600 kilogrammes from a height of 6 metres.

This system can be used from a ship either (Fig 1) exactly as Wright does it, or (Fig 2) by dropping a weight from the stern. The advantage of the second method is that it is unnecessary to erect a high structure on the deck which might be destroyed by the enemy's projectiles. It would probably be convenient to have both systems, one being the spare apparatus.

Aeroplanes for use from shipboard should be provided with floats to prevent sinking in case of coming down on the sea and to facilitate the return to the ship.

This is no new idea; it was however formerly tried with a view to experimenting with less danger than on land. As long ago as 1904 Voisin had a Wright aeroplane on the Seine, without a motor, but provided with floats and towed by a boat with an Antoinette motor; the glider rose and flew for 150 metres at a height of 17 metres. The Parseval also had three floats of torpedo-like form intended to be replaced by wheels after the completion of the trials. As floats do not in any way affect the flying qualities of the aeroplane there is nothing to prevent their becoming general for marine aeroplanes.

If the ship goes astern so as to keep her stern to the wind and there is a clear run of 20 to 25 metres on deck aft it appears that there will be no difficulty in launching an aeroplane even without the weight.

To replace the aeroplane on board it must descend on to the water and then be hoisted in like a target. This requires calm weather. When rough, suitable pistols might be used to fire the messages on board, messages written on very fine copying paper such as carrier pigeons take, so that a great many might be fired to ensure at least one arriving at its destination. The aeroplane having discovered the enemy and established contact between the rival fleets would consider its mission accomplished, and try to get ashore.

With the two methods above described the aeroplane cannot always rise without the aid of a weight, and must have the guiding plane; if then it has to land it will not be able to raise itself again to

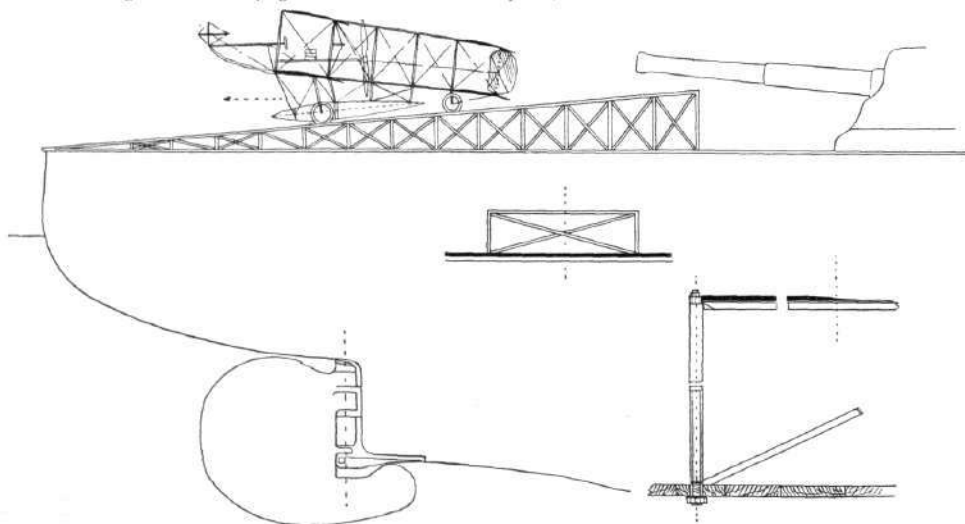


Fig. 3.

in raising itself vertically in the air, special arrangements for starting must be made.

return on board. To prevent this it appears to me a different system might be used (Fig. 4).

Suppose an aeroplane of French type furnished with wheels, and floats of torpedo-like shape under the fuselage, the dimensions of

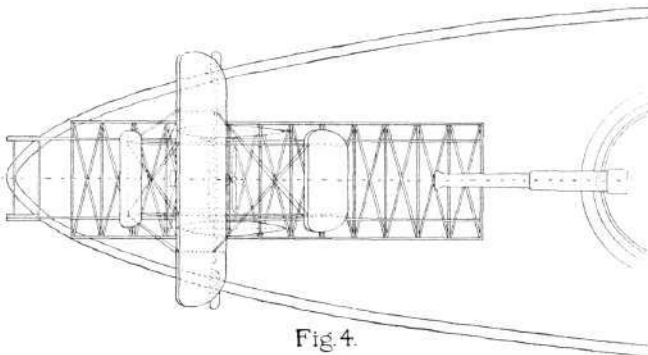


Fig. 4.

the floats being calculated to give the necessary 500 kilogrammes of buoyancy reserve. The longitudinal position of these floats is such that their centre of gravity is in the same vertical line as the centre of gravity of the aeroplane. An inclined plane of one in fifteen is set up on deck between the after turret and the stern; it is supported by a framework of hollow stanchions screwed into metal fittings in the deck. These stanchions are stayed by longitudinal and transverse angle-irons; the two guiding angle-irons are run fore and aft and symmetrically along the tops of the stanchions and support a

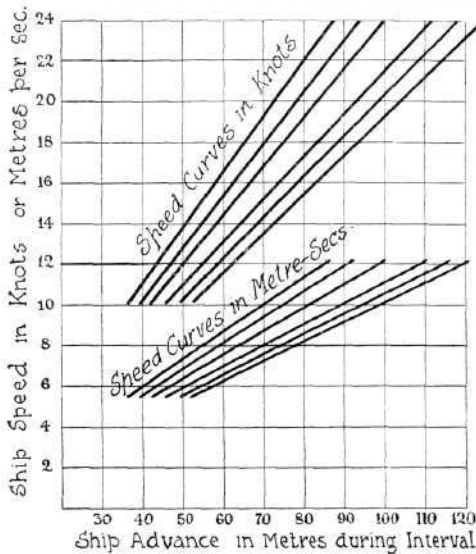


Fig. 5.

light wooden plane with two grooves in which the four wheels attached to the aeroplane revolve. The whole arrangement can easily be dismounted (Figs. 3 and 4). The aeroplane is placed on the guiding grooves at the upper end of the inclined plane, the engine is then started and the aeroplane released, when the action of the screws added to the force of gravity gives the required speed for rising.

We might use a Bayard-Clement biplane (Figs 3 and 4), which has the following dimensions:—Supporting surface 44·3 square metres, spread of wings 11·3 metres, length 10·8 metres, surface of elevator 3·4 square metres, surface of tail 15·35 metres. Horse power 40. Revolutions of the screw 1500 per min. Diameter of the screw 2·6 m. Pitch of screw 2m. Speed 16 ms. Weight 500 k.

II.—Bomb Dropping.

The height must not be too great but the aeroplane must take advantage of its great manoeuvring powers to descend fairly close above the ship, throw its bombs, and then rapidly depart, so as to avoid the wave of explosion created.

There must be two persons in the aeroplane, one as a pilot, the other as an observer, navigator and bomb thrower, armed with chart, note-book, camera &c. Having rapidly made the necessary calculations he should be able to throw bombs with some accuracy. The problem of flying with two persons has already been solved, as witness the brilliant flight of great length by French officers and others.

Short flights have been made by three, and even more people at a time. As early as the 25th June at Rouen, Efimoff carried three passengers, two standing on the skids below the engine.

To find aeroplane speed.—It is necessary that the aviator should know the speed of his machine exactly. The following method of determining it has been suggested.

The aeroplane flies backwards and forwards over the distance AB. The average speed V_0 is noted by means of a chronometer, thus obtaining the actual aeroplane speed modified by a component, u , of the wind-speed in the direction AB.

Then we can write $V = n \cdot V_0$ where n is dependent on $A = \frac{n}{V}$.

To find n :—

If t is the total time for traversing up and down AB, then

$$t = \frac{AB}{V+u} + \frac{AB}{V-u} = \frac{2AB}{V^2 - u^2}$$

$$\text{But } V_0 = \frac{2AB}{t} \therefore V_0 = \frac{V}{V^2 - u^2} \cdot \frac{2AB}{t}$$

$$\therefore V = \frac{V_0}{V^2 - u^2} \cdot V_0 = \frac{1}{1 - \frac{u^2}{V^2}} \cdot V_0 \text{ where } n = \frac{1}{1 - \frac{u^2}{V^2}}$$

Table I gives the values of A between 0·1 and 0·8. The calculation of V is made by successive approximations, the first value of A being $\frac{u}{V_0}$:—

TABLE I.

A.	n.	A.	n.	A.	n.
0·10	1·010	0·34	1·131	0·58	1·507
0·11	1·012	0·35	1·140	0·59	1·534
0·12	1·015	0·36	1·149	0·60	1·562
0·13	1·017	0·37	1·159	0·61	1·593
0·14	1·020	0·38	1·169	0·62	1·625
0·15	1·023	0·39	1·179	0·63	1·659
0·16	1·026	0·40	1·190	0·64	1·694
0·17	1·030	0·41	1·202	0·65	1·732
0·18	1·034	0·42	1·214	0·66	1·772
0·19	1·038	0·43	1·227	0·67	1·814
0·20	1·042	0·44	1·240	0·68	1·859
0·21	1·046	0·45	1·254	0·69	1·908
0·22	1·051	0·46	1·268	0·70	1·961
0·23	1·056	0·47	1·284	0·71	2·018
0·24	1·061	0·48	1·299	0·72	2·079
0·25	1·067	0·49	1·316	0·73	2·144
0·26	1·072	0·50	1·333	0·74	2·213
0·27	1·079	0·51	1·352	0·75	2·286
0·28	1·085	0·52	1·371	0·76	2·365
0·29	1·092	0·53	1·391	0·77	2·453
0·30	1·099	0·54	1·412	0·78	2·551
0·31	1·106	0·55	1·434	0·79	2·659
0·32	1·114	0·56	1·457	0·80	2·778
0·33	1·123	0·57	1·481		

Example :—

The aeroplane flies six times over a course, AB, of 10 kiloms., and the total time occupied is 1h. 6m. 40s. Wind, 5 m.s.

$$\therefore t = 4,000 \text{ s. } V_0 = 60,000/4,000 = 15 \text{ m.s. } V = n \cdot V_0$$

$$\therefore V_0 = 1·123 \times 15 = 16,845 \text{ m.s.}$$

To Find the Height of the Aeroplane.—This can be found exactly by means of a barograph, which shows the height above the surface of the sea, from which must be subtracted the height of the ship's deck.

To Find Ship Speed.—The aeroplane flies at its determined speed astern of the ship, and on the same course. The observer aligns the cross wires of his telescope on to the stern of the ship, and notes the time, and, as he knows how long the aeroplane will take to traverse a ship's length, if he notes the point on the ship at which the telescope is pointing after this ship's-length interval, the distance between the ship's bow and this point is the ship-advance in the same interval. This distance can be obtained by reference to a plan of the ship. Tables and diagrams can then be constructed to show the resulting ship-speed. (Table II.) (Fig. 5.)

TABLE II.

Distances traversed by ship between observations. Ship speed.

Ship length = L =	120m.	130m.	140m.	150m.	160m.	170m.	Metres	m.p.h.
Interval = t =	7s.	7.5s.	8s.	9s.	9.5s.	10s.	per sec.	
36	39	46	46	49	51	5'14	10	
43	46	49	56	59	62	6'17	12	
49	54	58	65	68	72	7'20	14	
58	62	66	74	78	82	8'23	16	
65	69	74	83	88	92	9'26	18	
72	77	82	93	98	102	10'28	20	
79	85	90	102	107	113	11'31	22	
86	93	99	111	117	123	12'34	24	

It may be objected that this necessitates the aeroplane flying astern and on the same course as the ship, offering a steady and slow moving target to the ship's guns. But the aeroplane can operate at such a distance that it is practically if not out of range at all events an extremely small object, and its visibility can be largely reduced by suitable colouring.

It will also only require a few seconds to take the observation, *i.e.*, the time the aeroplane takes to fly a ship's length.

To Find the Bomb-dropping Point.—The bomb-falling time can be calculated by means of the formula $S = \frac{1}{2}gt^2$ where S = height, g = acceleration due to gravity, t = falling time. Then, knowing the ship-speed and consequent ship-advance in t seconds, the observer can arrange so as to hit any particular point on the ship required. (Table III.) (Fig. 6.)

TABLE III.

A. Bomb	t. Time	Advance of ship in metres during fall of Bomb at following speeds.									
Dropping of	Height.	Fall.									
m.	s.		10	12	14	16	18	20	22	24	knots
50	3.2		16	20	23	26	30	33	36	39	
100	4.5		23	28	32	37	41	46	51	56	
150	5.5		28	34	40	45	51	57	62	68	
200	6.4		33	40	46	53	59	66	72	79	

A correction for bomb energy due to aeroplane-speed must be made; experiments should be carried out to determine this, which will depend on the type of bomb used and the dropping height.

To Find Wind Speed.—This could be found out previously, as the wind will not vary much during the attack, but the variations of wind in the various strata of the atmosphere must be borne in mind. An anemometer carried on the aeroplane will give the information required, there being instruments of this kind to be had both light and correct. Flying against the wind the anemometer shows the sum of wind and aeroplane speeds; subtract from this the speed given by the number of screw revolutions; the remainder is the wind speed.

The wind component in the ship's course direction can be determined by noting the angle the smoke makes with the ship's course. The wind component must then be added or subtracted from the aeroplane speed to obtain the effective speed for finding the ship's speed.

If the aeroplane steers at right angles to the wind, the anemometer will give the resultant of wind and aeroplane speeds, and in this way by noting the previous experimental numbers of anemometer revolutions at various speeds, the values of the wind speed can be found.

Conclusion.—By other experiments one can find the error caused by the wind in dropping bombs of various types from various heights, wherewith to construct other tables of corrections for ascertaining the dropping point with sufficient accuracy.

To recapitulate. The aeroplane having sighted the ship will steer for her, keeping at a sufficient height for safety from gun-fire, even when the necessary guns for high-angle fire on board ships shall have been perfected, though it is not probable that such guns can be arranged to give enough speed of orientation to follow such a mobile and tiny object as an aeroplane.

Knowing the wind-speed the aviator flies at a certain speed astern of the ship, and calculates the ship-speed by means of his own speed corrected for the wind component in the ship's course direction. Having rapidly consulted the tables and calculated the bomb-dropping point, the observer will align his telescope and give the

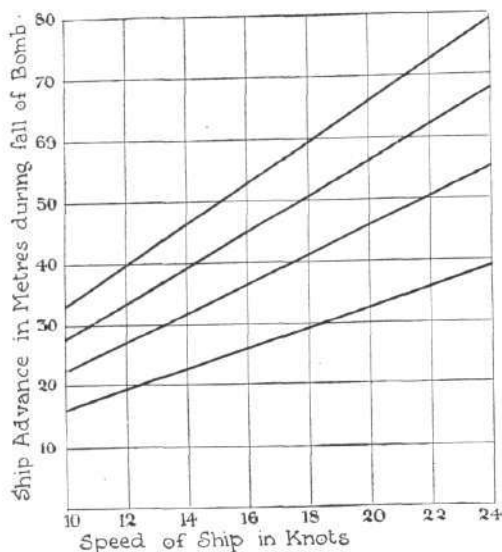


Fig 6.

necessary orders to the pilot. It will be necessary, considering the great speed of the aeroplane, to pass more than once over the ship before getting a favourable chance, descending in large spirals so as to get to the right height, the successful result of the attack depend-

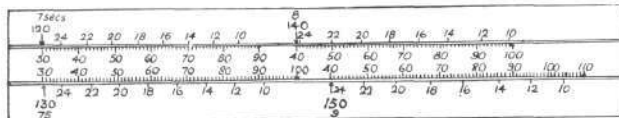


Fig 7

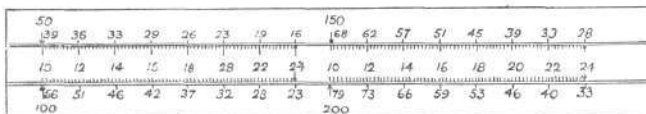


Fig 8

ing greatly on the quickness of eye and mind of the aviator. To facilitate calculation, slide-rules could be constructed (Figs. 7 and 8), these being easy of manipulation.

In Fig. 7 the central strip slides in grooves in the fixed part; the graduations are arranged in four groups according to the length of the ship and consequent time the aeroplane takes to travel a ship's length; the movable part is marked in metres to represent ship advance, and the fixed part in knots to represent ship speed.

To find ship speed, move the central part to the left till the ship-advance graduation coincides with the arrow on the fixed part; then the arrow on the moving part will indicate the required ship speed on the fixed part.

In Fig. 8 the four groups represent the bomb-dropping heights, the moving part indicates the ship speed, and the fixed part the ship advance while the bomb drops.

To find ship advance, slide the central part to the left till the ship speed coincides with the arrow on the fixed part; the arrow on the movable part then points to the required ship advance on the fixed part.

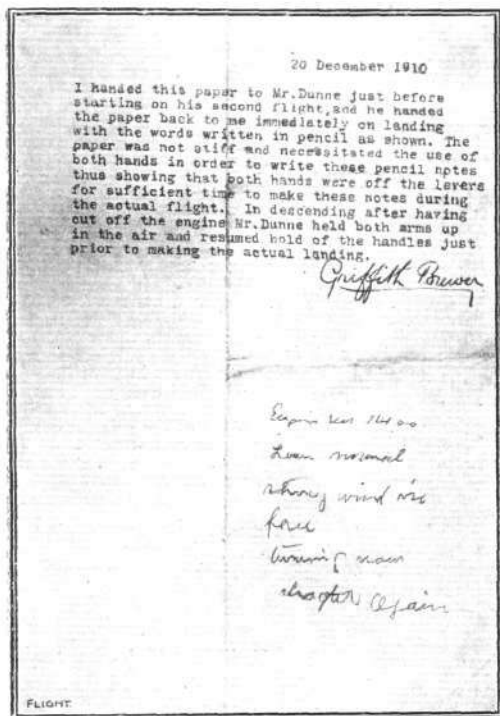
Aeroplanes and Border Raids.

As a result of the flying which has been witnessed in India recently, the opinion has been expressed that aeroplanes will prove remarkably useful in the suppression of border raids on

the North-West frontier. The raiders have been giving a good deal of trouble during the past few years and it is stated that half-a-dozen aeroplanes kept at convenient spots along the frontier would be more valuable than a brigade of troops,

AN AUTOMATIC STABILITY MACHINE.

THE DUNNE BIPLANE.



DUNNE STABILITY TEST.—Mr. Dunne's notes upon the sheet of paper prepared by Mr. Griffith Brewer.

THE report is now issued in the *Journal* of the Aeronautical Society of the automatic stability trials of the Dunne biplane (which has been so fully illustrated and dealt with in *FLIGHT*) made by Mr. Griffith Brewer and Mr. Orville Wright, at the Eastchurch, Isle of Sheppey, flying grounds of the Royal Aero Club, on behalf of the Aeronautical Society, on December 20th last.

The following is the full text:—

OFFICIAL REPORT.

December 21st, 1910.

Yesterday afternoon we observed two flights by Mr. Dunne on his automatic stability machine, at the Royal Aero Club ground at Eastchurch.

The first flight was over a distance of about 3 miles (not timed), the machine being turned at a height of about 100 ft. and making a good landing near the starting point. On the second flight of 2 mins. 29 secs., Mr. Dunne made notes on a piece of paper during the flight. On both flights the engine was cut off in the air before landing and the machine came down without materially altering its angle of incidence.

ORVILLE WRIGHT, GRIFFITH BREWER,
 Members of the Aeronautical Society.

WRITING TEST.

December 20th, 1910.

I handed this paper (reproduced in facsimile above on this page) to Mr. Dunne just before starting on his second flight, and he handed the paper back to me immediately on landing, with the words written in pencil as shown. The paper was not stiff and necessitated the use of both hands in order to write these pencil notes, thus showing that both hands were off the levers for sufficient time to make these notes during

the actual flight. In descending, after having cut off the engine, Mr. Dunne held both arms up in the air and resumed hold of the handles just prior to making the actual landing.

GRIFFITH BREWER.

(Notes made in pencil by Mr. J. W. Dunne)

Engine revs. 1,400.
 Levers normal.
 Strong wind in face,
 Turning now.
 Straight again.

ACCOUNT OF THE TRIALS.

By J. W. DUNNE.

As Mr. Orville Wright and Mr. Griffith Brewer were both pressed for time I decided to make only short circular flights.

Obviously, the first thing to do was to show that the machine could fly as well and as strongly as those of the ordinary T shape, to exhibit the power of control and manoeuvre given by the two little steering flaps, and above all to show that with this type of machine good turns, with the correct amount of banking, and no slide-slipping, could be effected without recourse to the complicated "three-rudder" system. I, therefore, contented myself with a closed circuit, allowing the machine to climb 100 ft. on the turn, and as this was the first time I had turned at any height, I confined my attention to making a neat job of it, and made no particular attempt to show off the automatic stability of the machine, until it came to descending. It is a well-known rule of flying that, before throttling the engine, the machine's bow should be pointed slightly downwards to avoid the loss of speed that would otherwise ensue, and it is in the proper manipulation of the levers immediately afterwards, to maintain speed and keep the machine under control, that the trained aviator has to exercise his greatest skill. To throttle without first depressing the bow, and then leave the machine severely alone, is a stiff test of longitudinal automatic stability, though, of course, no test of lateral stability. So both in this flight and in the second, I first locked the levers in the central position in which they are left while flying, then throttled, and immediately threw up my arms and left the machine to come down from the flying tilt to the gliding tilt of its own accord, and thence find its way earthward. The steep slope of the ground at the point of landing rendered it unsafe to attempt the requisite flattening of the trajectory before touching earth by the use of the throttle alone, so at the last moment I utilised the flap-controls for this purpose.

The next point was to prove the safety of the machine,

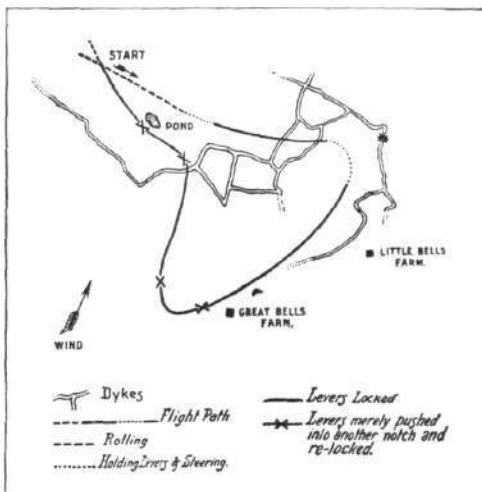


Diagram showing the course taken by the Dunne biplane when under the stability tests.

As we have no place for passengers in the present apparatus I suggested that I should go round the same short circuit and carry out the writing test. I proposed this, as I know of nothing else which so thoroughly puts to the proof the aviator's real trust in his machine's fitness to look after itself, compelling, as it does, absolute detachment of the mind. One may eat, drink, smoke, click a camera, take off one's coat, or do a hundred other things, and all the time keep one eye ahead to see what the machine is really doing, and be ready to snatch at a lever if necessary. But when writing, sitting low in our big boat, one's attention is perforce completely withdrawn from one's surroundings. I ran down across the wind, hopped off, touched again, and then began to rise steadily. As soon as I saw that I would clear the bushes on the boundary dyke, I locked the levers, and felt for the paper and pencil given me by Mr. Griffith Brewer. The paper was in one pocket and the pencil in another; by the time I had got them ready I must have flown a considerable way. I started to set down certain points I was anxious to observe and remember. First, I counted the divisions on the revolution indicator, which has no figures between the 1,000 and 1,500 marks. When I began to set them down I found that unfortunately it was almost impossible to write on the thin paper with only the fingers and palm of my hand as a backing thereto, and that a certain amount of excitement rendered the task still more difficult. I then observed the positions of the levers relatively to their toothed racks and made a note of that. I next looked about inside the boat for something else to note, and while doing so became aware of the violent wind in my face, which curiously enough I had entirely failed to notice on the previous flight.

As I had been anxious to ascertain how far the front screen shielded the aviator I wrote this fact down. From

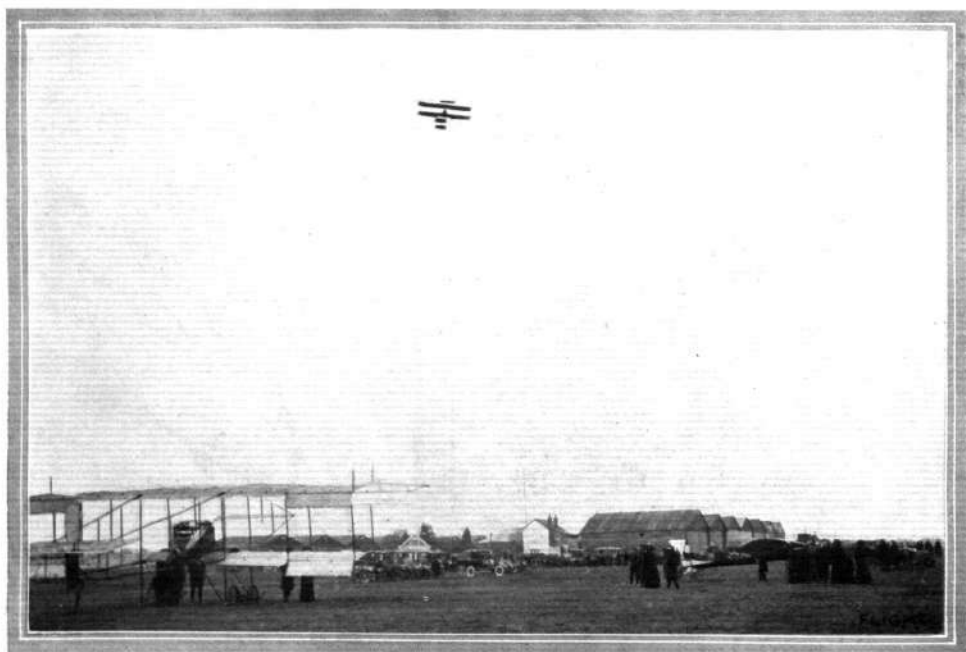
the time I had first locked the levers, till now, I had not paid the smallest attention to what the machine was doing or where it was going. It had been left to follow its own fancy, and might by this time be anywhere or in any position for all I knew. However, looking up I saw that it was still level, but had drifted down wind and was aiming to hit a wind-pump, so I decided to commence the turn.

I separated the levers, holding them till the turn had started, noted its radius, which was shorter than I required, diminished the difference between the lever positions, locked them, waited a little time, hands off, until I was satisfied with the radius of the turn and with the rapidity with which the machine was mounting, got hold of my paper again and with some difficulty wrote "turning now." Looking over the port bow I saw a farm-house nearly beneath me, and realising that the circle was now bigger than I had intended, and also that I was much higher than I had thought, I pushed each lever into the fourth notch, and, sitting with my hands in my lap, allowed the machine to swing itself sharply round. Then I locked the levers centrally and sat back, but did not continue writing as I was puzzled by a momentary failure to recognise the ground below me. I am not a balloonist, and am unused to heights. After a moment I realised that a little dark green blob was the pond in the middle of the ground. So I turned the machine towards it, and then wrote "straight again." By the time I had got that down I saw that I should have to descend at once if I meant to get back to my starting point, so I moved the machine's nose a degree or two round, aiming at the point in question, returned each lever carefully to its central notch, throttled the engine, and held up my arms. Instantly the machine's head drooped a little, and, without any abatement of forward speed, she began to sink towards the ground. I landed her as before described.

Ae.C.F. Medals.

In addition to the gold medals which have been awarded during the year to MM. Leblanc, Aubrun, Paulhan, the late George Chavez, Capt. Marconnet, and Lieut. Fequant, the Aero Club of France has decided to award silver-gilt medals

to the holders of the world records, M. Leblanc (speed), Tabuteau (distance), H. Farman (duration), G. Legagneux (height). Silver-gilt medals have also been awarded to Capt. Bellenger, Breguet, Weymann and Wynmalen, who have specially distinguished themselves during the past year.



Mr. Low, on his Bristol biplane, getting well into the air at Brooklands. At rest are Mr. Sopwith's Howard Wright biplane, and in the distance the Hanriot monoplane.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Annual General Meeting.

The Annual General Meeting of the Members of the Royal Aero Club of the United Kingdom will be held on Thursday March 30th, 1911, at 5 o'clock, at 166, Piccadilly, London, W.

Notices of Motion for the Annual General Meeting must be received by the Secretary not less than twenty-one days before the meeting, and must be signed by at least five members. Wednesday, March 8th, 1911, is the last day for the receipt of Notices of Motion.

Committee.

In accordance with the rules, the Committee shall consist of eighteen members. Members are elected to serve for two years, half the Committee retiring annually. Retiring members are eligible for re-election.

The retiring members of the Committee are:—

Griffith Brewer	Prof. A. K. Huntington
Major C. de W. Crookshank, R.E.	F. K. McClean
John Dunville	C. F. Pollock
Capt. A. H. W. Grubb, D.S.O., R.E.	Stanley Spooner
Col. H. C. L. Holden, R.A., F.R.S.	

Any two members of the Club can nominate a member to serve on the Committee, having previously obtained such member's consent. The name of such member so nominated, with the names of his proposer and seconder, must be sent to the Secretary in writing not less than fourteen days before the annual general meeting. Wednesday, March 15th, is the last day for the receipt of nominations.

Members are reminded that a ballot paper for the election of nine candidates to seats on the Committee of the Club will be forwarded to them at least seven days before the date of the annual general meeting.

Committee Meeting.

A meeting of the Committee was held on Tuesday, the 14th inst., when there were present:—Mr. Roger W. Wallace, K.C., in the chair, Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Mr. John Dunville, Mr. E. Manville, Mr. C. F. Pollock, Mr. Stanley Spooner, and Harold E. Perrin, Secretary.

Election of Members.—The following members were elected:—*Life Member.*—A. E. Berriman.

Ordinary Members.—T. Beaugard, John William Brown, Harold Hardy, Mrs. Harold Hardy, John Handley Morrison Kirkwood, M.P., and Lieut. Archibald R. J. Southby, R.N.

Aviators' Certificates.—The following aviators' certificates were granted:—

56. A. H. Aitken.
57. C. L. A. Hubert (subject Aero Club de France).
58. G. H. Challenger.
59. G. K. S. Darroch.
60. Archibald Knight.
61. C. P. Pizey.
62. Louis Maron (subject Aero Club de France).
63. W. H. Ewen.
64. Gustav Hamel.

Airship Pilots' Certificates.—The following certificates were granted:—

1. Col. J. E. Capper, C.B., R.E.
2. Capt. P. W. L. Broke-Smith, R.E.
3. Lieut. C. M. Waterlow, R.E.
4. E. T. Willows.

Aviation Prizes.—The conditions for the British Empire Michelin Cup and the Army and Navy aviation prizes were approved.

Aviators' Certificates and Airship Pilot Certificates.—The standard rules drawn up by the Fédération Aéronautique Internationale at the Paris Conference in October last, and which came into force on February 15th, 1911, were ordered to be published.

Mr. E. Manville's £500 Prize.—A unanimous vote of thanks was passed to Mr. E. Manville for the generous prize of £500 offered by him at the recent Club Banquet. At the suggestion of Mr. Manville, the prize will be set apart for an endurance competition for British aviators on an all-British machine with a passenger. The drawing up of the rules was referred to the Competitions Committee.

Aero Exhibition.—The following sub-committee was appointed in connection with the model exhibit:—A. E. Berriman, Col. J. E. Capper, Col. H. C. L. Holden.

Competitions Committee.

A meeting of the Competitions Committee was held on Monday, the 13th inst., when there were present:—Major F. Lindsay Lloyd, in the chair, Mr. Ernest C. Bucknall, Professor A. K. Huntington, Mr. R. W. Wallace, K.C., and Harold E. Perrin, Secretary.

"Daily Mail" Second £10,000 Prize.—The draft rules were again considered.

Medals Awarded by the Royal Aero Club.

The following medals have been awarded:—

Special Gold Commemorative Medal.—The late Mr. Cecil S. Grace.

Gold Medal.—Mr. C. Grahame-White to commemorate his victory in the Gordon-Bennett Aviation Cup.

Silver Medal.—Mr. Alec Ogilvie for obtaining third place in the Gordon-Bennett Aviation Cup.

Silver Medal.—Mr. Robert Loraine. Cross-Channel flight, England to Ireland.

Silver Medal.—Mr. John Dunville. Cross-Channel balloon trip, Ireland to England.

International Aero Exhibition at Olympia.

The date of the International Aero Exhibition, held by the Society of Motor Manufacturers and Traders under the auspices of the Royal Aero Club, has been altered, and the Exhibition will now open on Friday, March 24th, and terminate on Saturday, April 1st, 1911.

Full particulars can be obtained on application to the Exhibition Manager, Society of Motor Manufacturers and Traders, Maxwell House, Arundel Street, Strand, London, W.C., or the Secretary, Royal Aero Club, 166, Piccadilly, London, W.

In connection with this Exhibition, a section for models will be organised by the Royal Aero Club, assisted by the Aviation Section of the Automobile Association and Motor Union. Full particulars can be obtained from the Secretary, Royal Aero Club, 166, Piccadilly, London, W.

Members of the Royal Aero Club will be admitted free on production of their membership cards.

A room in the Princes' Gallery will be placed at the disposal of the members during the Exhibition.

Gordon-Bennett Aviation Cup.

The Cup, having been won last year by Mr. C. Grahame-White, the nominee of the Royal Aero Club, the race for 1911 will be held in England. The exact date and place will be announced later.

Each Club forming part of the Fédération Aéronautique Internationale has the right of challenging the holder, the Royal Aero Club, and such challenge must be received before March 1st, 1911.

The Committee of the Royal Aero Club will select the three competitors and reserves representing the United Kingdom. Intending competitors are requested to notify the Secretary on or before February 28th, 1911, of their willingness to compete if chosen. Applications must be accompanied by a cheque for £20, the entry fee, which amount will be returned should the competitor not be selected.

Candidates must be members of the Royal Aero Club.

Gordon-Bennett Balloon Contest.

The Cup having been won last year by the Aero Club of America, the race this year will be held in America. The exact date and place will be announced later.

Each Club forming part of the Federation has the right of challenging the holder, the Aero Club of America, and such challenge must be sent in not later than March 1st.

The Committee of the Royal Aero Club will select the competitors to represent the United Kingdom, and intending competitors are requested to notify the Secretary on or before February 20th, 1911, of their willingness to compete if chosen. Applications must be accompanied by a cheque for £20, the entry fee, which amount will be returned should the entry not be accepted.

Hendon Aerozome.

Members are reminded that the proprietors of the aviation ground at Hendon have kindly granted free admission to members of the Club at any time on presentation of their membership cards. Flying takes place daily, weather permitting. Three aviation schools are already established there—C. Grahame-White and Co., the Aeronautical Syndicate, and L. Blériot. The ground is situated within 6 miles of Marble Arch and is on the main Edgware Road.

Aviators' Certificates.

The Royal Aero Club of the United Kingdom will grant certificates in accordance with the regulations of the *Fédération Aéronautique Internationale* to candidates who have complied with the following rules:—

RULES.

1. Candidates must accomplish the three following tests:—
 - A. Two distance flights, consisting of at least 5 kilometres (3 miles 185 yards) each in a closed circuit, the distance to be measured as described below.
 - B. One altitude flight, consisting of a minimum height of 50 metres (164 ft.), but this must not form part of one of the two flights prescribed above.
2. The course on which the aviator accomplishes tests A must be marked out by two posts situated not more than 500 metres (547 yards) apart.
3. After each turn round one of the posts the aviator must change the direction when going round the second post, so that the circuit will consist of an uninterrupted series of five figures of 8.
4. The distance flown shall be reckoned as if in a straight line from post to post.
5. The method of alighting for each of the three flights shall be with the motor stopped at or before the moment of touching the ground, and the aeroplane must come to rest within a distance of 50 metres from a point indicated previously by the candidate. The landing must be effected under normal conditions, and the officials must report the manner in which it was effected.
6. Each of the three flights must be vouched for in writing by officials appointed by the Royal Aero Club. All tests to be under the control of, and in places agreed to by, the Royal Aero Club.
7. All flights must be made between sunrise and sunset, and suitable previous notice must be given to the Secretary of the Royal Aero Club.
8. The Royal Aero Club declines all responsibility for any accidents, or any damage that may occur to the aviators, their machines, or to any third parties during or in connection with the qualifying tests of the candidate.
9. Candidates must make application on a form provided for that purpose. Any expenses incurred must be borne by the candidates.
10. Foreigners belonging to a country represented on the *Fédération Aéronautique Internationale* can only receive a certificate from the Royal Aero Club after having obtained the consent of their national sporting authority, as approved by the *Fédération Aéronautique Internationale*. A certificate may be granted to a foreigner whose country is not represented on the *Fédération Aéronautique Internationale*.
11. The Committee of the Royal Aero Club will decide if the candidate has qualified for a certificate, but reserves the right to refuse the same or withdraw the same at any time without giving reasons.
12. The decision of the Committee of the Royal Aero Club in all matters connected with the tests is final and without appeal.
13. The Committee of the Royal Aero Club may in special cases waive any or all of the above rules, and grant certificates at its discretion.

Airship Pilot's Certificate.

The Royal Aero Club of the United Kingdom will grant certificates in accordance with the regulations of the *Fédération Aéronautique Internationale* to candidates who have complied with the following rules:—

RULES.

- Candidates must
1. Possess an aeronaut's certificate for airship pilots, which will be granted when the following tests have been accomplished:—
 - a. Five ordinary ascents in a free balloon.
 - b. One sole ascent of at least one hour's duration.
 - c. One night ascent, it being understood that if the departure takes place before sunset the landing must not be effected before midnight, and if the departure takes place after sunset and before midnight the landing must only be effected after sunrise.
- The candidate must furnish satisfactory evidence of the accomplishment of the above tests.
2. Furnish a record of six ascents made in an airship on different

dates, one being of at least one hour's duration and three under the control of the candidate.

3. The application must be signed by two airship pilots who have been present at not less than three of the departures and landings of the candidate.

4. The Committee of the Royal Aero Club will decide if the candidate has qualified for a certificate, but reserves the right to refuse the same, or withdraw the same, at any time without giving reasons.

Army and Navy Aviation Prizes.

(Presented by Mr. A. Mortimer Singer.)

Under the rules of the Royal Aero Club and Fédération Aéronautique Internationale.

Mr. A. Mortimer Singer has presented to the Royal Aero Club the sum of £1,000 for competition by commissioned officers in His Majesty's Regular Army, the Royal Navy and the Royal Marines on the active list.

The prize will be divided as follows:—

Army ... £500 Navy and Marines ... £500

to be competed for under the following conditions:—

1. The winner to be the officer who, accompanied by a passenger, also in the Regular Service (combined net weight to be not less than 20 stone), starting from any recognised flying ground, or other starting point sanctioned by the Royal Aero Club, makes on an aeroplane the longest cross-country flight out and back between April 1st, 1911, and March 31st, 1912, both days inclusive. The flight must be confined to the British Isles.
2. All competitors must hold an aviator's certificate issued by the International Aeronautical Federation represented in this country by the Royal Aero Club of the United Kingdom.
3. The flight must be observed both at the start and turning point by officials appointed by the Royal Aero Club.
4. The flight shall be out and back, and the distance from the starting point to the turning point, measured in a straight line, shall be not less than 10 miles or more than 50 miles. A competitor may repeat his out and back flight for any number of times without alighting, and in order to arrive at the total distance covered only the completed circuits will be taken into account. The distance covered will be measured in a straight line between the two points on an Ordnance Survey map. The turning point must be a fixed object, selected and declared by the competitor to the observers of the flight.
5. A competitor must obtain a certificate signed by the observers as to the exact point of ascent and turning point and number of completed circuits, which must be forwarded to the Secretary, Royal Aero Club, 166, Piccadilly, London, W., within three days.
6. No prize will be awarded to any competitor who has not accomplished a flight of at least 40 miles.
7. Officers wishing to compete must send in their names to the Royal Aero Club, 166, Piccadilly, London, W., together with an entrance fee of 20s., after which they are at liberty to start at any time they please, subject to the necessary arrangements for observers having been made.
8. Should any questions arise at any time as to whether a competitor has properly fulfilled the above conditions, or should any other questions arise in relation to them, the decision of the Committee of the Royal Aero Club shall be final and without appeal.

The British Empire Michelin Cup.

Under the rules of the Royal Aero Club and Fédération Aéronautique Internationale.

The Michelin Tyre Co. has presented to the Royal Aero Club of the United Kingdom, for competition by British aviators, a trophy of the total value of £500.

Annually, for five years, a replica of this trophy, together with a sum of £500 in cash, will be given to the successful competitor. This trophy will be competed for under the following conditions, which shall apply for this year only:—

- Conditions.—1. The holder of the cup for 1911 will be the competitor who, on October 31st, 1911, shall have accomplished the greatest distance on any heavier-than-air machine without touching the ground.
2. The minimum distance to be covered in order to qualify for this prize shall be 250 miles round two or more mark posts for the necessary number of circuits.
 3. Entries must be made in writing to the Secretary of the Royal Aero Club, 166, Piccadilly, London, W. At least two clear days' notice must be given by a competitor before making his attempt.
 4. The entrance fee of 10s. and a further sum of £1 must accompany every notification of an attempt. Competitors, however, may give notice that they will compete from day to day and in such cases must pay a deposit of £10 to cover the necessary fees for

attempts on ten consecutive days, which will be returned (less expenses incurred) in respect of those days on which no attempt is made. Every competitor must be a member of some recognised body dealing with aerial matters in the Empire, and must hold an aviator's certificate issued by the International Aeronautical Federation, represented in this country by the Royal Aero Club.

5. All attempts must be made between the hours of sunrise and sunset, in the presence of the official or officials appointed by the Royal Aero Club.

6. The recognised flying grounds of the Royal Aero Club are at the Isle of Sheppey, but the Committee will be willing to entertain any other ground subject to the competitor paying the necessary expenses incurred.

7. The start for the records will be reckoned from the crossing over the starting line in actual flight.

8. Competitors must be British subjects from any part of the Empire, manipulating a British-made machine. All the principal parts of a competing machine must be British made. All decisions applying to this rule shall be given by the Committee of the Royal Aero Club. This shall not be held to apply to raw material, but all

finished or manufactured parts of such machine must comply with the above condition.

9. The decision of the Committee of the Royal Aero Club on all matters connected with this competition to be final and without appeal.

SPECIAL REGULATIONS.

a. Competitors must have their machines ready for examination as soon as possible after sending in their entries. In the event of any alteration being made after the examination such alteration must be at once notified to the Secretary.

b. Competitors must, before starting, produce a certificate from the maker certifying that both machine and motor are of British manufacture in accordance with the rules.

c. The complete machine must be examined before the start and the competitor must give a written undertaking that such machine complies with the regulations.

HAROLD E. PERKIN.
Secretary.

166, Piccadilly.

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PROGRESS OF FLIGHT

Aeronautical Soc. of Great Britain (53, VICTORIA ST., S.W.).

At the meeting of the Society on Tuesday last at the Royal Society of Arts two papers were read. "The Pressure on Planes and Curves," by F. Handley Page, Esq.; "A Note on the Turning Movement of Aeroplanes," by Professor G. H. Bryan.

Friday, March 31st.—Annual General Meeting, at the Royal Society of Arts, at 8 p.m.

Conisborough and District Model Ae. Soc. (18, CHURCH ST.).

THURSDAY last week, in the Church Hall, Conisborough, the club entertainment was a great artistic success. Mr. J. Brocklesby opened with a short speech on the work of the Society, mentioning that he thought the glider which is now being made in the workshop would not remain such long, and would soon have an engine attached and become a real aeroplane.

All the items of a varied programme were much appreciated, a farce causing much merriment. The magic lantern display was also very interesting, including slides of the Blériot, Antoinette, Wright, and Farman Aeroplanes, and also Grahame-White, Paulhan, Barnes, and others.

The secretary, in proposing a vote of thanks to Mr. Brocklesby, gave a short history of the Society's work.

Unfortunately the audience was small, the total takings from the entertainment only just covering expenses. Some other scheme will therefore have to be arranged in order to raise funds for the glider.

Coventry Aeroplane Building Society (22, KINGSTON ROAD).

The club's workshop at York Street is now open for the use of members who wish to do any work in connection with aeroplanes, and a show of members' models has been arranged there

ABOUT THE COUNTRY.

which is well worth a visit from anyone interested in the subject who would like to join the society.

East London Aero Club (ALEXANDRA HOTEL, STRATFORD, E.)

At the general meeting held on the 4th inst. at headquarters, the workshop Committee gave out the interesting announcement that a two-storied workshop in Forest Lane, Stratford, within ten minutes' walk of Epping Forest, had been acquired for the club. During the last week members have been very busy fitting up benches, &c., and it is also intended to furnish a reading room and a members' room upon the premises.

Messrs. Handley Page, Ltd., have kindly placed at the disposal of the club their large flying grounds at Barking, and all model flying meetings of the future will be held there.

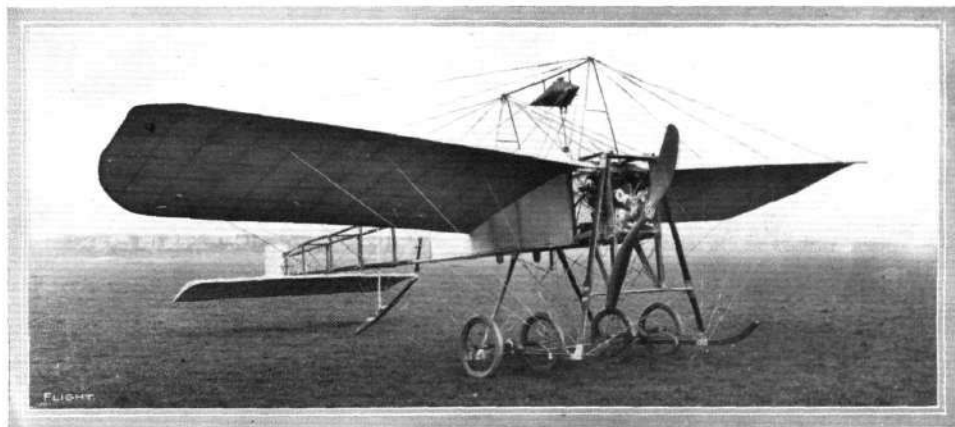
A committee meeting will be held to-night (Saturday) in the workshop at 8 o'clock.

The hon. secretary, Mr. E. A. Sissons, will be pleased to send full particulars and prospectus to any gentleman wishing to join this club. A cycling club is also run in conjunction with the Aero Club, and visits are being paid to all flying grounds and works near London.

Kite and Model Aeroplane Assoc. (27, VICTORY RD., WIMBLEDON)

THIS Association in conjunction with the Aerial League, held a very successful meeting on Thursday, the 9th inst. at the Imperial Institute, S. Kensington, when Mr. S. F. Cody gave a lecture entitled "Kites to Aeroplanes." He showed by a series of 120 slides how the man-lifting work was carried out in the Army with his kites, and how useful they were, as they could be sent up when the aeroplane would be useless. Also he described the various stages of the experiments up to the present day, and pointed out the great stability of his machine.

Major B. Baden-Powell spoke a few words, and praised Mr. Cody



Mr. J. B. D. Long's monoplane with which he has been making experiments at the Acton Aviation Grounds.—Beautifully constructed by Mr. Long from the high-grade materials supplied by Handley Page, Ltd., this well-designed machine should do well in the near future when the engine troubles, which have up to now bothered the constructor, have been overcome.

for the very instructive lecture he had given, and was pleased to see the grand results he had with his last machine. He also stated that the Kite and Model Aeroplane Association proposed forming a section for the New Aerial Reserve, and that although the men were ready there were no kites or tackle, and he appealed to those present to help to fit out this section.

The equipment was to consist of a 25.30-h.p. lorry, with kites, &c., and would carry a complete section of about 16 men and an officer.

Mr. Akchurst states that this was the largest meeting held in London this winter, 530 being present, and that he has arranged for another lecture by Mr. Cody later which will be illustrated by animated photographs.

In regard to the kite section, the secretary asked whether any gentlemen or ladies wishing to help the Association would send donations to the president or to the hon. secretary. Should any patriotic donors wish the outfit named after them, the council will be very pleased to accept this, provided they give the whole outfit which will cost about £700 for motor car, kites, instruction, and up-keep.

Midland Aero Club (GRAND HOTEL, BIRMINGHAM).

To avoid clashing with the Automobile Club's smoking concert on February 24th, the club's smoking concert, originally called for that date, has been transferred to March 17th.

Mr. S. F. Cody will give a lecture to the members on March 10th.

Sheffield & District Ac.C. (22, MOUNT PLEASANT RD., SHARROW)

A GENERAL meeting of the club was held on Monday evening, 6th inst. It was decided to transport the glider from the gliding grounds at Tinsley to the workshop for repairs, and those persons who volunteered to assist will meet at the ground at 3 p.m. to-day (Saturday). Will other members who can make this convenient please attend, as every assistance is needed.

Some discussion took place on a scheme which was outlined at the meeting by the secretary regarding the organising of a high-class aviation entertainment, comprising a lantern lecture with the most up-to-date slides and cinematograph films. The suggestion was well received, and a guarantee fund was opened and subscribed to. The advisability of organising a model section was also discussed, and the secretary expressed the opinion that the management of such a branch might well be placed in the hands of Mr. Noble (late Birmingham Aero Club). The discussion was adjourned until the next general meeting, which will duly be announced in FLIGHT.

Sheffield Model Aero Club (35, PENRHYN ROAD).

A MEETING of the above club was held at Staniland's Restaurant, West Street, on Wednesday, February 8th, when great

interest was shown in the objects of the club. The following officers were elected:—Secretary—Mr. C. F. W. Cudworth; President—Mr. S. Pattinson; Treasurer—Mr. W. Blake; Committee—Messrs. A. Wesson, W. R. Blake, C. B. Blake, H. Slack, T. Pashley, A. Bates, and L. Eaton.

The members hope to get into their workshop, which will be situated in the centre of the city, in the course of the next few days. It is hoped this will be in active operation for model construction in anticipation of the first flying competition, to take place on Easter Monday. A book on aeronautics was presented by Mr. M. D. Manton, and other books and drawings, &c., have been promised for the formation of a library. Flying papers will be taken each week for the use of members.

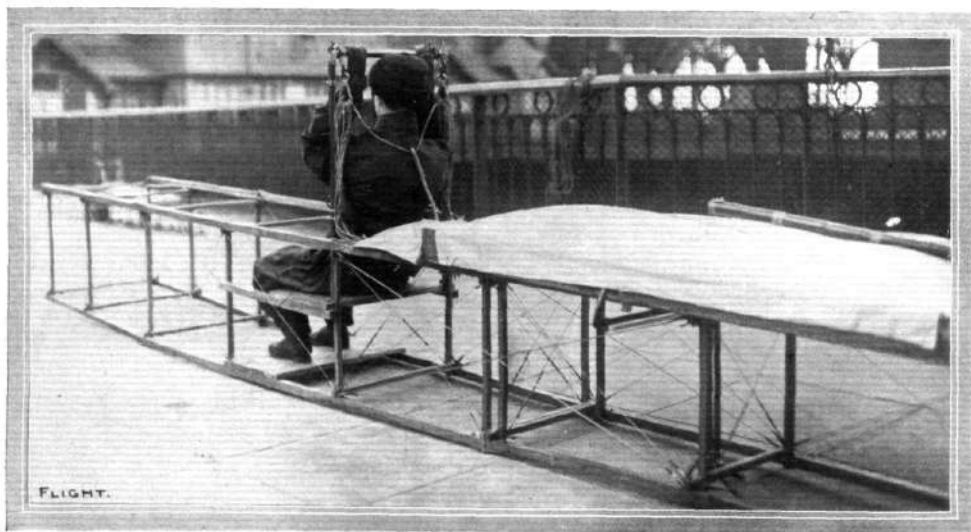
A model Blériot, 4 ft. span, made by C. F. W. Cudworth, on view at the meeting, was a centre of considerable interest. All those wishing to join the club are requested to communicate with the secretary at once, as the limit of founder members is fifty, and as soon as that is reached the subscription will be raised.

Society of Model and Experimental Engineers.

THE twelfth annual conversazione and dance of the Society will be held on Saturday, the 25th inst., at the Caxton Hall, Victoria Street, when, as usual, there will be a fine collection of models of all kinds, many of which will be seen in motion. There will also be a wide range of tools for model engineers on view, while a feature of the entertainment will be a number of lantern lectures, among them one illustrating the development of aerial navigation. Tickets, price 2s. 6d. each including refreshments, may be obtained by post from the secretary, 37, Minard Road, Hither Green, S.E.

Yorkshire Aero Club (HOTEL METROPOLE, LEEDS).

AT the last meeting of the club, Mr. R. J. Isaacson spoke on "The Development of the Radial Engine," describing in detail his own invention, the Isaacson engine. He claimed that his device for slowing down the engine so as just to keep the propeller revolving without driving was a virtue that would be appreciated by aviators, and would materially lessen the risks of the popular *col plane*. There was a numerous attendance of members, and an interesting discussion followed. The chairman (Mr. Stuart A. Hirst) has been fortunate enough to obtain a promise from Mr. S. F. Cody to deliver a lecture in Leeds on Wednesday evening next. His subject will be "From Kites to Aeroplanes." The lecture, for which the Philosophical Hall has been engaged, is to be illustrated by a fine collection of cinematographic views. Prof. Goodman, of the Leeds University, is to be chairman.



The automatic parachute, the invention of M. G. Hervieu, for automatically checking the speed of a falling aeroplane in the event of an unexpected mishap. Experiments were recently made with this from the Eiffel Tower with a dummy aeroplane and mannikin, which are reported as having given considerable promise. The parachute weighs about 15 lbs. in all, and is connected to a folding trapeze at the back of the pilot's seat. By a simple lever the parachute is spread out, and it is said that the resultant effect is that the fall is checked to about 9 ft. a second.

BRITISH NOTES OF THE WEEK.

British Prize Regulations.

SEVERAL important announcements appear in the official notices of the Royal Aero Club on pages 135 and 136 this week. In addition to the further list of certified pilots, the rules governing Mr. Mortimer Singer's prizes for the Army and Navy are given, and the new regulations governing the issue of pilots' certificates for aeroplanes and also for dirigibles are set out.

The Vickers-Maxim Naval Airship.

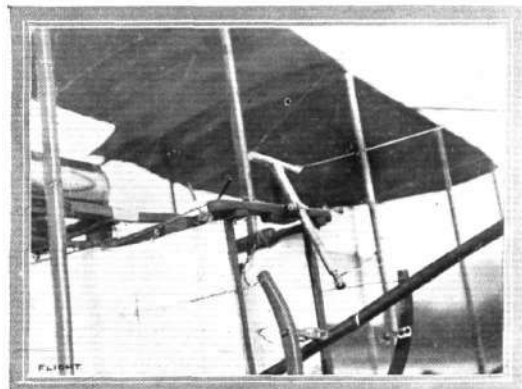
AN official confirmation of the advanced state of the huge dirigible under construction at Barrow was forthcoming in Parliament on Monday last, when Mr. McKenna stated that the airship was nearly completed. He further vouchsafed the information that experiments in connection with the management and the training of her crew were in progress. In regard to any delay that there might have been, this was inevitable, he said, as the ship was experimental.

Brooklands Prizes for Flying.

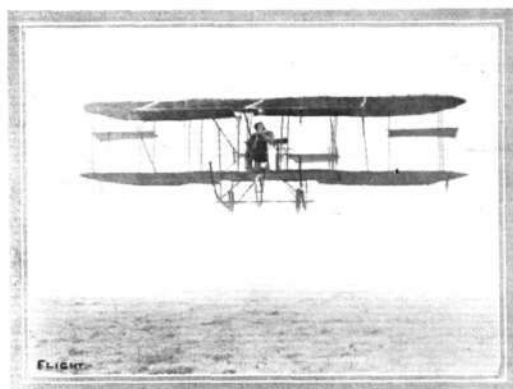
ON each of the days on which it is proposed to hold motor race meetings at Brooklands during the coming season, three prizes will be offered for flying while the competitors will take part in an aggregate competition extending over the whole season. The dates of the meetings are March 25th (Saturday), April 17th (Easter Monday), May 10th (Wednesday), June 5th (Whit Monday), June 17th (Ascot Saturday), July 20th (Thursday), August 7th (Bank Holiday), October 4th (Wednesday), and three prizes of £30, £15 and £5 are offered for each day, except on June 5th and 17th and August 7th, when the first prize will be increased to £50. The prizes in the aggregate competition will be £150, £100 and £50. No flights under 15 mins. in duration will be counted and no competitor will be eligible for the aggregate prizes unless he has flown for over 15 mins. at not less than 50 per cent. of the race meeting days on which any of the prizes had been won. Flying will commence at 2 p.m., and continue until 7.30, with the exception of March 25th, when it will close at 6 p.m., April 17th at 6.30 and October 4th at 5.30. No competitor will be allowed to start after 30 mins. before the closing time.

Mr. Grahame-White Flies with Miss Pauline Chase.

AT Freshfield, near Southport, on Monday last, Mr. Claude Grahame-White was trying one of Mr. C. F. Paterson's biplanes, carrying with him as passenger Miss Pauline Chase, his fiancée, who this week is playing in "Peter Pan" at the Southport Opera House. Mr. Grahame-White, with Miss Chase, flew Mr. Paterson's Curtiss type biplane; Mr. Paterson, carrying Mr. Barnes, of Freshfield, handling his Farman machine. The direction of Formby was taken by the flyers, a distance of about 8 miles in the direction of Southport being made, the turn for the home journey being near Birkdale.



MISS L. E. BLAND'S "MAYFLY."—View showing the general arrangement of the controls. The main lever of the Farman action type is made of steel tubing, and it will be seen that bicycle pedals have been fitted to the foot-levers as longer pull was required with new type of rudder. Wire connections have been found better than rods for the petrol and throttle-levers seen at the side of the seat which is enclosed in fabric.



FLYING IN IRELAND.—The "Mayfly," the Bland biplane, with Miss Lilian E. Bland, its designer and constructor, in the pilot's seat, in full flight at Carnamoney, near Belfast, where this very enterprising lady is carrying on her work of building machines. Our photograph was secured during a foggy and hard frosty day.

Both machines were flying splendidly, although the wind was inclined to be tricky. Later on Mr. Paterson was again up, carrying two passengers. On the Sunday Mr. Paterson, Mr. Grahame-White and Mr. King were all in the air with different machines; Mr. Paterson carried Mr. Grahame-White as passenger to Southport and back, and later on Mr. King accompanied Mr. Grahame-White for a trip to Waterloo and back, Mr. King also flying with Mr. Paterson on his Farman to Southport.

Proposed Aerodrome at Lingfield.

AN important scheme is being evolved which has for its object not only the training of aviation pilots but thoroughly preparing all those able to take advantage of its system for occupations in different departments of the aerial service. The site is near Lingfield Station, Surrey, where about 320 acres are available for the object in view. From the nature and position of the Lingfield estate, which adjoins the racecourse, it is claimed that the finest aviation ground in Great Britain can be created. The land is flat and open, being covered entirely with springy turf. The site for the erection of the hangars has been selected near the railway station, where the ground rises slightly. There is already a house suitable for the use of pupils as a club house, and a number of farm outbuildings already standing can be readily converted into motor houses and workshops. The idea is to put up about 100 sheds at moderate rentals, whilst efficient instructors and school aeroplanes are necessarily to form part of the scheme. What appears to be a good idea for connecting up various aviation centres is also foreshadowed by the suggestion of erecting a further 100 sheds in different parts of the United Kingdom, so that flyers from Lingfield centre can make journeys to grounds at definite points, working in conjunction with the Lingfield scheme, where they will be sure of proper accommodation and suitable reception.

A New British Biplane.

WRITING with reference to the new biplane of the Curtiss type, which has been built for him by the Liverpool Motor House, Mr. G. Higginbotham, of Macclesfield, says it has quite exceeded the expectations of the designers. It has proved very fast and exceptionally steady in flight. Fitted with a 50-h.p. Gnome motor, but without fuel, it weighs only 700 lbs. On the recent trip to Southport and back, with Mr. Paterson in charge, Mr. Higginbotham says he was able to take control of the machine with ease during part of the return journey.

Huntingdon as a Flying Centre.

VERY persistent and praiseworthy efforts have been made by those associated with the City of Huntingdon to make that town a centre for aviation. A further step was taken last week at a meeting of the Town Council, when the Mayor, Alderman T. Coxon, presided. It was a question of renting Quail's Meadow to the Philaerian Company for the

purpose of erecting a factory for the manufacture of aeroplanes. A rental of £25 per annum was offered, but difficulties arose in respect to the requirements of the Company to the right to fly over and alight on Views Common and New Pasture, although they were quite willing to arrange for compensation for any damage done to the tenant who thereon fattens his cattle. As the tenancy was thoroughly approved by the authorities, it is to be hoped that the difficulties in regard to the flying rights required will be shortly surmounted.

Brooklands to Brighton.

MR. C. O. MORISON has contemplated for some little time flying from Brooklands to Brighton, and on Wednesday last successfully accomplished his object. Starting about 4 o'clock on his Gnome-Blériot, after making one circuit of the aerodrome, he rose very

sharply to about 3,000 ft. and took a good line direct for Brighton. Flying in perfect form he reached his destination, alighting on the beach, after a turn over the sea, a little before five, having covered the distance well under the hour. In landing, the propeller and carriage were damaged.

Earlier in the day Mr. Graham-Gilmour had made a start for the same objective, but owing to engine troubles was not so fortunate as Mr. Morison.

The Wright Flyer.

A VERY tastefully got-up brochure has reached us from the Wright Company, Dayton, Ohio. It is only in the nature of an advance announcement, but it gives details of the model "B," or roadster type, as well as the model "R," or baby racer type of the newest Wright biplanes, and it also includes particulars of the 30-35-h.p. Wright motor.

FROM THE BRITISH FLYING GROUNDS.

Brooklands Aerodrome.

TUESDAY last week was an ideal flying day, and a fair number of people came to see the sport. Mr. Ducrocq was in the air, making several fine flights at a height of about 700 ft., several times passing away over Weybridge, finishing with some clever *vol planés*. Captain Wood, on his Bristol, was out at 10 a.m., and flew three circuits at about 600 ft. The weather being foggy he put in the morning giving passenger flights to and instructing Knight, Captain Sykes and Fleming. Knight did several straight lines; after lunch he did straight lines with Captain Sykes. Mr. Sopwith was busy all day. He took up a cinematograph operator, flying round the grounds with him. He then landed, and the operator took up a position about 100 yds. away, in front of the machine, and started his exposures. Mr. Sopwith ran over the ground, and rising well, flew over the operator's head. He got to a good height and the camera man again was ready for him. Mr. Sopwith, descending with a swift *vol plané*, stopped at the feet of the cinematograph man. Mr. Watkins took a turn at a good altitude, but did not remain up long. Descending with a graceful *vol plané* he handed the machine over to his pupil, Mr. de Silva, who started out with

determination. He did not rise more than 3 ft., landing down by the Wey, and bringing her head down too suddenly the skids stuck into the ground and the right hand side of the under-carriage came away, resulting in a damaged elevator, tail boom and the upper right hand plane, the propeller being also smashed. Mr. Gilmour, who was flying the "Big Bat," with Mr. Hewitt as passenger, landed by the disabled biplane, and having ascertained the extent of the damage was away again in the air. Mr. Sopwith then flew over the disabled machine, whilst the cinematograph operator secured some further "records." Mr. Blondeau was flying round with Mrs. Hewlett in the passenger seat. Mr. Kemp, who was piloting the Roe triplane, was making some very steady flights at a good height. Mr. Morison, on his monoplane, carried out several good trips over the surrounding country. His method of rising is always a source of pleasure to the onlookers. His *vol planés* are very fast but he suffers in his landings owing to his not having a good view of the ground.

Wednesday was another brilliant flying day. Mr. Ducrocq was out practically all day. Captain Wood found it too windy for pupils, after trying himself for a circuit. In the afternoon he took up Knight and Captain Sykes, three circuits each, then Captain Sykes again and flew for about 25 mins., *vol planing* from 700 ft. Knight flew several straight lines. The Roe triplane was in the air in the morning with Mr. Kemp, making good straight flights. Mr. Blondeau came out on his Farman biplane and was giving Mr. "Bird" some very long lessons. His method when teaching is to fly quite low, and to-day was never more than about 10 ft. high. His turns are very pretty, as it can hardly be an easy matter to do circuit after circuit and never rise more than a few feet. Mr. Gordon England, having now got the Hanriot going again, made several straight flights and half turns at a good height. He then handed the machine over to his pupil, Mr. Oxley, who put in some excellent practice and made some good turns. Mr. Gordon England came out on the Weiss, which flew well after the slight alterations which have been made to it. The machine rose easily and several half-turns were made, but, as the engine was missing slightly, no circuits were attempted.

On Thursday a light wind was blowing all day, but in spite of this there was some good flying. During the day Sir Alexander Bannerman was on the grounds. Mr. Ducrocq, as usual, was the first out, making several fine flights, travelling outside the track on several occasions. He was again flying off and on all day. Captain Wood, when out on the Bristol, found it squally so returned to his shed after one circuit and another in the afternoon. Mr. Gordon England was making straight flights and half-turns on the Weiss. The body on this machine appears to be too deep, thereby making the machine hard to fly in a side wind. Mr. Pixton, on the Avroplane, was making straight flights with a passenger, and Mr. Sopwith was making several very fine flights, both with and without passengers. Mr. Morison, on his Blériot, rose to quite 800 ft., flying out over the surrounding country and finishing with a sharp *vol plané*. The E.N.V. Hanriot had burst another cylinder, but Mr. Gordon England managed to get another down quickly. Mr. Collyer is converting the "Hell Hound" into a biplane.

Friday was windy. The Molesworth triplane was out rolling in the morning. Later on, when the wind had subsided a little, Mr. Morison, on his monoplane, made a good steady flight, but found the wind rather nasty; nevertheless,



Mr. O. C. Morison making a graceful turn at Brooklands on a Blériot monoplane prior to his 6,000-ft. altitude flight.

as soon as Mr. Morison had landed Mr. Sopwith started out and circled round the ground several times. The wind dropped still further and Mr. Pixton, on the Avroplane, made several straight flights.

Saturday was rather windy. Captain Wood was out on the Bristol at 8 a.m., and flew for a couple of circuits, then putting up Knight to fly straight lines in a 5 mile an hour cross wind, which he did excellently. In the afternoon Mr. Low flew continually, taking up passengers in a tricky wind. Later in the day, when the wind was well up, the Avroplane came out and Mr. Pixton made some straight flights. Mr. Gordon England again tried the Weiss, having changed the propeller and plugs. She lifted better, but while flying he noticed that he was getting wet from a stream of water. Having landed, upon examination, it was discovered that the water pump cover had burst. When Mr. Morison started he at once rose to a good height and circled round for some time. In landing he was caught by a side wind, but the Blériot under-carriage adapted itself to the conditions as only a Blériot can. Mr. Sopwith then took to the air and was very steady in spite of the 15 to 20 m.p.h. wind which was blowing. Mr. Low followed on the Bristol for a trip, finishing with one of his fine *vol plané*. By this time a very large crowd had collected, and there must have been over a hundred cars parked around the sheds. Mr. Ducrocq was out flying round the course several times. Mr. Sopwith was busy carrying lady passengers, and Mr. Morison, when flying with the wind appeared to be travelling at a great pace. Mr. Blondeau was carrying Mrs. Hewlett as passenger, and Mr. Pixton made some straight flights on the Avroplane with a passenger. Mr. Oxley took the Hanriot up, making several good flights.

Sunday was another fine flying day, there being a great attendance. Mr. Morison made a very fine altitude flight on his Blériot, reaching a height of 6,000 ft., a record for Brooklands. Although daring he is a very careful flyer. Captain Wood did 1½ hours school work on the Bristol before breakfast with Captain Sykes and Fleming, both holding the lever. About 5 p.m., when the wind was dropping, he took up Captain Sykes and Fleming for passenger flights. Mr. Gilmour came out on "Big Bat," and indulged in some tricky flying. He went up with his bowler hat on, but finding it uncomfortable flew low past his shed, and, at the moment of passing, threw his hat overboard. Then turning fast he banked over to a terrifying angle and flew off round the ground. He handles the Blériot with consummate skill and it is doubtful whether there is in England a pilot who could equal him in trick flying. He is a great favourite with the crowd, as they enjoy that side of the sport. Mr. Sopwith was at work a great part of the day. His methods are different and he only has to be seen flying to ensure a good impression of his capabilities.

Monday was calm all day. The Avroplane was out with Mr. Kemp up, he making some very good flights and covering a circuit. Mr. Oxley also had a go on the triplane but kept very near the ground. He then changed over to the Hanriot and made several straight flights and two circuits. Mr. Persjo then took over the machine and after a few runs across the ground successfully attempted a flight. In a short time he was making circuits in a masterly manner, and with a little more experience he should make a first-class aviator. Mr. Ducrocq, having repaired some damage done on Saturday, was out on his biplane. Mr. Blondeau was flying on his Farman with Mr. Hewlett. Mr. Watkins came out for the first time since the smash de Silvia had on his Howard Wright. Mr. Watkins carried Mr. Manning, the Howard Wright designer, for a flight. Mr. Oxley was out again on the Hanriot, and in trying to do a figure 8 came to grief, damaging one wing and the under-carriage slightly. Before breakfast Captain Wood, on the Bristol, went up and flew about 35 mins. over Byfleet and surrounding country at about 1,000 ft., and *vol plané* down. Knight then tried his hand and flew his first circuit, afterwards making four more. After breakfast Captain Wood took up Fleming and Captain Sykes holding the lever, for passenger flights. In the afternoon Knight passed for his brevet, Mr. Rance and Lieut. Watkins observing. He flew very steadily and had nice control of the machine. Captain Wood then did a couple of circuits, finishing with a circular *vol plané* from 500 ft. Captain Burke, of the Army Air Corps, also flew a circuit.

London Aerodrome, Hendon.

Blériot School.—On Monday last week Mr. Prier went up for about 5 minutes on one of the School machines, but considered the wind too high to allow the pupils to go out.

Mr. Ewen, a new pupil, had his first lesson on Tuesday, which was fine. He showed remarkable ability to master the control of the machine, and after some rolling practice was able in the afternoon to make short straight flights. Lieut. Forestier-Walker, another pupil, was out for the first time.

Wednesday and Thursday were devoted by Mr. Prier to testing the motors on the School machines.

Friday was a busy day at the School. Mr. Darroch, one of the pupils, passed the first test for his certificate. Mr. Ewen made a few more straight flights, showing a marked improvement on his previous lessons. Two more pupils had their first theoretical tuition in the hangars, namely, Mr. Champion, an American, and Mr. Henderson, of London.

On Saturday Mr. Darroch successfully passed the second test for his brevet; Mr. Ewen, on another School machine, made two more straight flights, his landings being particularly good. Mr. Keeler, another American pupil, received the first theoretical notion of the controls of the machine.

In spite of the windy morning on Sunday Mr. Darroch passed the third and last test necessary for qualifying for his R.Ae. Club certificate. The manner in which he handled the machine in the stiff breeze blowing at the time thoroughly demonstrated his skill as an able pilot.

Another busy day was put in on Monday. The big event of the day was Mr. Ewen qualifying for his certificate. This, on the fourth day at the helm, is a very creditable achievement, proving the great aptitude of Mr. Ewen as an aviator, and also that practical methods are in force at the Blériot School. Messrs. Champion, Keeler, Walker, and Henderson all had rolling practice until darkness closed down proceedings.

Mr. W. H. Ewen, it is interesting to note, is a Bachelor of Music of Edinburgh University, organist and choir master of Queen's Park Parish Church, Glasgow, and Associate Member of the Royal College of Organists. He is therefore the first graduate in music, and the first organist, to obtain his brevet in Great Britain.

Valkyrie School.—Wednesday, the 8th, was too windy for flying nearly all day, but late in the afternoon the school instructor took out "Valkyrie IV" and made a pretty flight of about six miles, finishing with a *vol plané*. The machine behaved with remarkable steadiness, although the air was by no means calm. Mr. Chambers then took out the school machine and made some excellent practice. The afternoon finished with another demonstration on the part of the Valkyrie pilot, who, quickly mounting to a considerable height,



Mr. Hamel on one of the Grahame-White Blériot machines at the London Aerodrome.

executed a number of sharp turns, finishing with a well timed *vol plané*, landing exactly in front of the Valkyrie hangars.

Next day was a good flying morning, and the Valkyrie School was consequently very busy. The first pupil to take the School machine in hand was Mr. Chambers, who, after a couple of preliminary runs, made about a dozen straight flights. This pupil is not yet nineteen years of age, and is coming on very rapidly, for so far he has had only one hour's rolling practice. Mr. Eadsforth then put in some useful School work, and after that the instructor took out "Valkyrie IV" and gave a very pretty demonstration of figure of eight flying. Finishing his flight near the sheds, it seemed to the onlookers as if he would certainly fly into them, but by means of one of his well known sharp right-hand turns he cleared the sheds by a big margin and descended amid the applause of those present. Mr. R. R. A'Court Beadon, of the India Police, was then given an extended passenger flight, and expressed himself extremely surprised at the steadiness of the machine.

In the afternoon Messrs. Clutterbuck, Gaskell, Eadsforth, and Chambers were all taking lessons on the School machine. The latter is certainly coming on very rapidly, for at the end of one and a half hours' practice he commenced making right-hand turns. Several demonstrations were given by the school instructor, during which figures of eight and other fancy flying were indulged in. Mr. F. J. Brodigan was taken for an extended passenger trip, ending with a *vol plané* in front of the sheds. Capt. P. Broke-Smith, R.E., representing the War Office, called on Friday and inspected the machines, but it was too windy to give him a demonstration.

Saturday morning was again too windy for flying. In the afternoon "Valkyrie IV" was out but made only a few circles of the aerodrome when engine trouble developed and a descent had to be made. It was eventually discovered that the engine was badly carboned.

Although Sunday morning proved over windy, in the afternoon the wind somewhat abated and "Valkyrie II" was out, Messrs. Bignold and Philpott having extended passenger flights. The last-mentioned gentleman, it may be added, weighs fifteen stone, and in addition an hour's supply of petrol was carried. The Valkyrie pilot then gave a good exhibition of figure of eight flying and *vol planing*, and that despite the fact that quite a respectable breeze was blowing.

Monday proved a perfect flying day, and the Valkyrie flying machines were busy from 7.30 a.m. to dark. Mr. Chambers started

the day by taking out the school machine and making a number of excellent flights. After that "Valkyrie II," the big passenger carrier, was at work all day, taking up passengers and pupils for instruction. A number of demonstrations were also given by the school instructor, who interested the spectators very much with his steady gliding descents and fancy flying. In the afternoon a demonstration was given of the ease and quickness with which a Valkyrie can be lifted into the air. Again and again the machine, starting from a point about 50 yards from the spectators, rushed towards them with terrific speed and lifted high into the air before reaching them, a slightly terrifying experience for the observers, but there was really no danger, as the machine passed over their heads fully 20 or 30 feet high.

"Valkyrie II" was out again at 7.30 a.m. on Tuesday, and the instructor made several extended flights, at the expiration of each descending by a *vol plané* from a height of 200 feet or more. Mr. Chambers then put in some useful practice on the big machine, but the wind rising soon afterwards stopped any more flying for the rest of the day.

Grahame-White School.—It was rather windy and foggy during the morning of the 7th inst.; but, notwithstanding this, Hubert came out early with the Grahame-White School E.N.V. Farman. Although he had up to that time only attempted straight flights, he got up well and made four circuits, flying at an average height of about 100 ft. After a trip of about 15 mins. he landed by a *vol plané*, with the engine throttled right down. He was warmly cheered on his descent, and official representatives of the Royal Aero Club being present on the ground he immediately without ado accomplished the three qualifying flights for his certificate.

Turner, another of the Grahame-White pupils, was then given instruction by Mr. Martin, who took him up in the E.N.V. Farman for several circuits by way of getting him used to the sensation of being in the air. Greswell followed, piloting the Gnome-Blériot. He remained up for three quarters of an hour, flying in wide circles well outside the aerodrome boundaries, and occasionally planing down to within 10 ft. of the ground, then switching on and ascending again.

Greswell was again at work on the Gnome-Blériot, and flew all round the surrounding country for a period of half an hour at an average height of 1,000 ft.

Wednesday morning was dull, and although the wind was none too pleasant for flying, several circuits at a height of 50 ft. were made.

A very interesting function took place after the morning's work, when Mr. Martin, the Grahame-White pupil, entertained the latter gentleman, his pupils, pilots, and staff to a luncheon at the "Aero" Restaurant in celebration of his obtaining his brevet. At the conclusion of a well served meal, Mr. Grahame-White rose, and, proposing "Success to the worthy host," made a characteristic speech, paying a tribute to the excellent services rendered him by Mr. Martin during his tour in the States. Replying, Mr. Martin thanked him for his good wishes, and said he attributed his success in flying to the excellent tuition and advice of Mr. C. H. Greswell, the instructor of the school.

On Thursday the Grahame-White staff was busy testing the new Baby biplane that has been built to Mr. Grahame-White's designs. This is fitted with a Gnome engine and Chauviere propeller. At present it is feared that the propeller is of too small diameter to make it a really efficient machine, but nevertheless it is expected to be very fast.

Friday morning was fine, but a tricky wind of 20 miles an hour was blowing.

Great excitement was recently caused by the appearance of Mr. Grahame-White with his new Baby biplane. During a preliminary run one of the landing wheels buckled. This was quickly replaced, and taking a sharp run head to wind, he was soon off the ground, showing a fine turn of speed. After two or three straight flights of about 30 ft. upward Mr. Grahame-White made two excellent circuits round the aerodrome.

Greswell was making straight flights on the Farman, in which a Wolseley engine has been recently installed.

No flying occurred on Saturday until after lunch and although a 20 miles an hour wind was blowing Mr. Grahame-White was in the air for several circuits on his new Baby biplane, flying in his usual excellent style, he being enthusiastically cheered on landing.

Hamel, on Mr. Grahame-White's Gnome-Blériot No. 10, then appeared, and rising at a remarkably sharp angle kept on mounting until he was at an altitude of quite 4,000 ft. The wind was so strong that he almost appeared to be standing still when flying against it; although his subsequent *vol plané* was a steep one, it took him over two minutes to get to earth. On landing, Greswell mounted the same machine and made a pretty little flight of a quarter of an hour, ascending some 500 ft., then finishing with his engine cut off.



Mr. J. V. Martin, the American aviator, who has just obtained his Royal Aero Club pilot certificate, on Mr. Grahame-White's E.N.V.-engined biplane at the London Aerodrome.



Holding back Mr. Hamel on a Grahame-White Blériot at the London Aerodrome upon the occasion when Mr. Hamel flew across country, as reported last week, losing himself in the fog, and having to descend in a field at the top of Mill Hill to ascertain his whereabouts.

On Sunday flying commenced early. Hubert was out early testing the Wolsley-Farman. The wind soon after asserted itself, gaining in force throughout the early morning, and it was not until half past three in the afternoon that machines again ventured out. Then Martin took a turn, making several circuits with the Wolsley-Farman, flying at an average height of 50 ft. Greswell got going on the Gnome-Blériot, and was speedily flying at an altitude of 800 ft. After remaining up for twenty minutes he planed to earth.

Monday commenced fine, and Hubert had the Wolsley-Farman brought out, and remained in the air for half-an-hour, flying steady circuits at an average altitude of 150 ft. Martin was the next to appear on the new Baby biplane. Mounting to an altitude of 200 ft. he gave a demonstration of quick turning both to the right and left hand, remaining up for eight circuits, the last three being flown very near the ground. The Gnome-Blériot then took up the running, with Greswell at the *controls*, and he remained in the air for nearly three quarters of an hour at a height of about 1,000 ft.

Salisbury Plain.

ALTHOUGH the wind during last week was too strong to permit of extended cross-country flights, a considerable amount of work was got through by the Bristol staff and pupils. On Wednesday Tetard was out flying the new extension machine, and testing an instrument for ascertaining the height attained. Mr. George Challenger, who was waiting to secure his pilot aviator's certificate as soon as the E.N.V. Bristol No. 19 was ready for work again, accompanied Tetard for a high flight, reaching about 2,500 feet. Lieut. Conner, R.F.A., was at work making some excellent flights, and one of the Bristol monoplanes arrived on this day, fitted with a Gnome engine. The Demoiselle pilot, Vusepuy, is to have charge of this machine. On Thursday the wind being tricky gave an opportunity for considerable work to be got through in the sheds. On Friday Mr. Maurice Tetard was again up, and once more carrying Mr. George Challenger, rising to 1,000 feet, and flying over Stonehenge and Amesbury, a distance alto-

gether of about 10 miles. The next day Mr. Challenger, who is the engineer to the British and Colonial Aeroplane Co., passed his qualifying flights quite brilliantly for the Royal Aero Club certificate, maintaining an average height of about 150 feet and being observed by Mr. G. B. Cockburn. Tetard was using the E.N.V. Bristol on Sunday, which has been under repairs. Afterwards he mounted another machine and flew at a height of 1,500 feet, making a trip round Fargo Camp, Stonehenge, Amesbury, and Durrington, finishing on his arrival back with a splendid *vol plané*.

On Monday last two more of the Bristol pupils were added to the pilot aviators' list, subject to the actual issue of the Royal Aero Club's certificate. These were M. Louis E. Maron and Mr. C. P. Pizey, both assistant engineers to the Bristol Co., Mr. Cockburn again being the official observer. Tetard in the meantime had been flying the E.N.V. Bristol No. 19 before Mr. Pizey, and Maron took it over for their official tests. Tetard was also flying with No. 12A Bristol biplane, again trying the height registering instrument, which gave an altitude for his flight of 2,100 feet. During the day he made a splendid trip of 5 miles, during which, taking advantage of the very favourable weather conditions, he was enabled for a distance of about 1,000 yards to fly with his arms folded without touching the control levers in any way, thus giving remarkable evidence of the stability of these machines. Pizey, in flying for his certificate, aroused considerable admiration by his method of flight, steadily covering the allotted course, attaining a height of 300 feet and finishing each of the three necessary tests with an excellent *vol plané*. For height this is probably a record for a pupil when taking his pilot certificate. Maron's proficiency is the more remarkable, as his first test for the certificate was only his second solo flight, which is an outstanding testimony to the ease of manipulation of the all British Bristol machines. The passing of these two pupils and of Mr. Knight at Brooklands makes three pilots qualified on Bristol machines in one day. The total number of Bristol pupils that have taken their certificates to date is eleven, being nearly one-fifth of the total number of pilot certificates so far issued by the R.Ae.C.

Across Brussels to Visit King Albert.

LANSEUR, who, it will be remembered, flew last December from Paris to Brussels, on Friday of last week made a very fine flight across Brussels on his Henry Farman. Taking with him as passenger M. Vleminsky (President of the Belgian Aviation Chambre Syndicale), he left Etterbeck Plain at 3.30, and passed rapidly across Brussels, alighting on one of the Royal park lawns at Laeken, after having circled three times round the Palace. King Albert and the Queen, accompanied by Princes Leopold and Charles, were present in the park, Lanser being afterwards entertained by His Majesty. Restarting from Laeken at 4.25, he successfully regained Etterbeck at 4.40.

Bathiat Flies the "Circuit de Lisieux."

FOR some time there has been on offer a prize of 5,000 francs from M. H. Laniet for a flight starting from Lisieux and passing round Orbec, Vimoutiers, Livarot, St. Pierre-sur-Dives, Mezeridon,

and back to Lisieux, and an extra 1,000 francs from M. Boivin-Champeaux for the aviator who, having flown the circuit, should then fly from the Lisieux race ground, encircle the Moyaux clock-tower, about 12 kiloms. away, and return to Lisieux, the total distance representing about 118 kiloms. Finding the weather favourable on Tuesday last, Leon Bathiat, who in the past has been known in England as associated with amateur cycle racing, and has had his eye on this event, made a successful attack on the prizes. Starting at 11.45 a.m. on his Gnome-Sommer monoplane, after a couple of circuits round the racecourse, he made a bee-line for Orbec, reaching there at 12.15, passing Vimoutiers at a good height, arriving at Livarot by 12.30 where he alighted at the Hippodrome. After a short stay he was away again for the next stage of his journey, flying over St. Pierre at about 1.15, Mezeridon at 1.25, and had regained Lisieux by 1.50 p.m.

Alighting on the racecourse, he without delay rose again, and was away steering for Moyaux, accomplishing this final trip without a hitch.

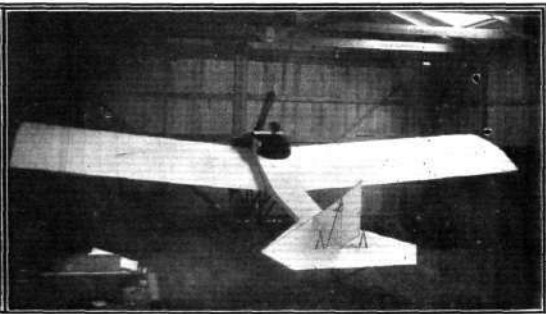
THE BARNWELL MONOPLANE.

THE accompanying photographs which have been sent to us by Mr. R. H. Barnwell, show something, although much less than might be desired, of the all-Scottish monoplane with which he is upholding Scottish prestige in the flight world and has just succeeded in winning the J. R. K. Law prize of £50 open to members of the Scottish Aeronautical Society. As our readers are aware, for a long time past Mr. Barnwell and the Grampian Motor Works, with which he is associated, have been experimenting in aeroplane work and the success that has attended his efforts at last is the result of a great deal of personal experience necessarily obtained very largely by trial and error, inasmuch as the work is being carried on in a place that is not exactly qualified to rank as yet as a centre of aviation in England.

The Barnwell monoplane is primarily interesting on account of the arrangement of the horizontal twin-cylinder Grampian engine with which it is fitted. This is very neatly placed in front of the body, within which the greater part of the engine is enclosed, only the cylinder-heads projecting on either side. The engine is said to develop 40 to 50-h.p., and is direct-coupled to a two-bladed wooden propeller. The rotation is anti-clockwise viewed from in front. Another interesting feature is the inclined position of the radiator, which is arranged as a kind of dashboard over the control mechanism and forms a sort of cab for the pilot. The whole machine is mounted on a central skid carriage supported by a light reinforced axle, which is braced to the front of the skid and to the body by wires. The body itself is entirely covered in, and is quite one of the characteristic features of the design. It terminates in the tail formed by fixed horizontal and vertical planes that carry hinged extensions, constituting the elevator and the rudder. The wings are given a considerable dihedral angle and a glance at the photograph showing the machine from behind also illustrates how the wings are stayed from above by a single wire attached to the side of the body. Presumably the designer is quite satisfied that the overhead mast and the usual multiplicity of wires to the top surface are unnecessary. The comparative absence of external trussing in this machine is at any rate very striking.



The Barnwell aeroplane, which has just won the J. R. K. Law £50 prize open to members of the Scottish Aeronautical Society, in flight.



TWO VIEWS OF THE BARNWELL AEROPLANE.—On the left will be seen the very neat arrangement of the horizontal twin-cylinder engine; on the right the tail will be observed, and also the bracing of the main planes to the body.

Italian International Competition for Dirigibles.

SPECIAL efforts are being made by the Italian authorities connected with the International Exhibition to be held at Turin this year, to assure representative dirigibles taking part in the international contests to be held in June and in the following months. The competitions have by way of reward allotted to them a trophy presented by King Victor Emmanuel, together with 275,000 francs cash divided as follows:—Grand Exhibition prize (circuit of the Po Valley), 150,000 francs to the first, 50,000 francs to the second; Sub-Alpine prize (Piemont circuit), 35,000 francs; Grand Prix d'Honneur, the King's Cup and 50,000 francs subscribed by the municipalities of Turin and Rome. It is announced that in addition to the Italian military dirigibles—"Piccoli," "Usuelli" and "Forlanini"—the following foreign airships are

likely to participate: "Parseval" (Germany), "La Ville de Bruxelles" (Belgium), "Astra" (France), "Zodiac" (France).

A Dirigible for Holland.

A BABY Zodiac, which has been built for the Dutch sportsman, M. Jochems, has been offered by him to the Dutch Government for the training of officers with a view to forming an Aeronautic Corps in connection with the Army. It is claimed that this is the smallest military dirigible, the envelope capacity being only 900 c.m.

The Gordon-Bennett Balloon Cup, 1911.

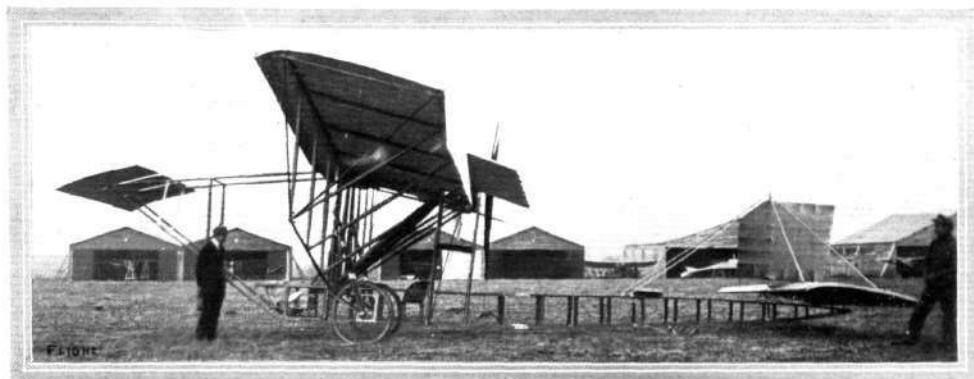
It is announced from America that October 9th has been selected as the date for the International Gordon-Bennett Cup for spherical balloons, entries closing on March 1st next.

FOREIGN AVIATION NEWS.

Flying at Rheims.

ON Wednesday of last week, Chassagne, on one of the big Hanriot monoplanes, carrying Captain Morel as passenger, was flying for 2 hrs. 5 mins., when, for want of fuel, he had to stop. Lenfant was up testing a Libellule taxi over a

carrying out excellent flights on the Wednesday. With a passenger and 140 kilogs. of ballast he attained a height of 360 metres in 7 mins. on a Sommer military biplane. Then, after flying over Carrignan, he returned once more to earth after a 35 minutes' flight. On Thursday an exciting incident



The new 4-seated Blériot monoplane as seen from the side, showing the biplane elevator, the first to be fitted to a Blériot.

distance of about 50 kiloms. The next day Vidart, on a Gnome-engined Deperdussin monoplane, was in the air for 1 hr. at 200 metres, passing away over Vitry, Pongivard and adjoining villages. Lenfant, on the 10th, was carrying a passenger for 38 kiloms., when a radiator leakage compelled him to shut down. Vidart was up for three-quarters of an hour, flying out beyond the aerodrome boundaries at a good height, and Durafour was also around the district over Betheny and Vitry. On Sunday Vidart took a trip at 400 metres high round Rheims Cathedral.

Making Entry by Aeroplane.

VEDRINES, last Thursday, finding that he had lost the train by which he intended to travel for the purpose of making entry with the Aero Club for the Prix des Amendes, so as to be in time, determined to fly on his Goupy machine to effect his object. Immediately rising from Juvisy, within 12 mins. he was landing at Issy, where he arrived by 7 minutes past 8. Having made his entry at the Aero Club he returned to Issy, and once more taking the wheel of his Goupy he was back at Juvisy by 10.40, and was then able to take part in the competition, securing one of the five prizes offered.

Noel's Work During the Week.

At Douzy, previous to the fatal accident, Noel was

occurred, a passenger-carrying machine catching fire and the petrol reservoir exploding; the apparatus was practically consumed.

Sommer Tries a New Machine.

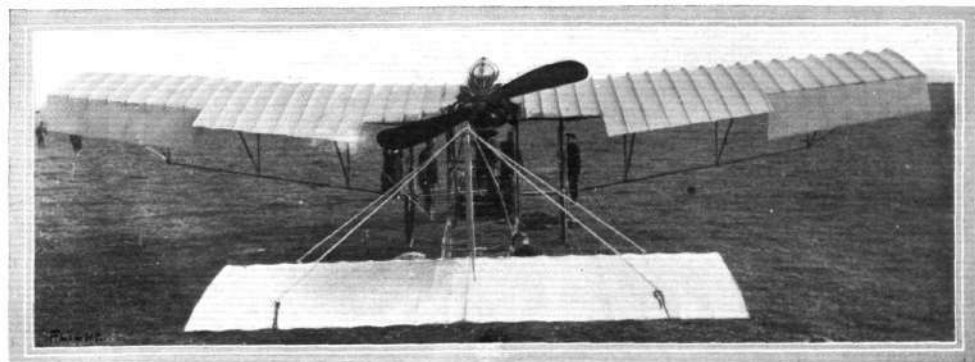
LAST week M. Sommer was trying a new racing biplane which is reported to have given remarkable speed.

The Puy de Dome Prize.

A GOOD suggestion has been made by M. A. Michelin in connection with the prize offered by his firm for a flight from Paris to the summit of the Puy de Dome. He says it has been suggested that some daring aviator will fly to the top and then at considerable risk to himself bring down the machine suddenly without regard to the consequences to it. In writing to the Aero Club of France, M. Michelin says his firm do not wish their prize to encourage folly, however heroic, and he therefore suggests that the regulations should be modified so that the prize should only be awarded if the machine after landing is certified by a Committee to be appointed by the Club, as being in a condition of being able to repeat its feat.

Paris-Puy de Dome Michelin Prize.

WHILST the suggestion from M. Michelin, as mentioned above, that the rules should be modified in regard to the



View from behind of the new 4-seated Blériot monoplane.

prize for this very ambitious flight, several aviators are practising assiduously with the idea of making an early attempt to secure so large a reward. M. Eug. Renaux at Buc last week on a Maurice Farman machine, put up some fine work practising for a smart alighting. In one case, after a flight, he, with motor stopped, planed down from about 300 metres, alighting at the exact spot previously chosen without a hitch. In like manner, Grandseigne, on a Caudron biplane, also recently, with the same object in view, after a 2 kilom. *vol plané* from the same altitude in 1 min. 25 secs., landed in the space of 8 square metres.

At Etampes, Henry Farman has been testing a machine with which Weymann proposes to have a try for the Puy de Dome prize. Carrying a passenger Mr. Farman got a speed of 90 k.p.h. out of it, whilst Weymann, by way of practice, carried on his 100-h.p. Farman two passengers, and in a fine *vol plané* came down in a pre-arranged space of 20 square metres. The next day on the same machine he carried with ease four passengers.

Lyons to Monceau.

CIMMERING, on the 10th inst., starting on his Gnome-engined Sommer biplane at 9.35 a.m., from the Bron Aerodrome, flew to Monceau (Isere) in 47 mins., a distance of 45 kiloms. Later in the day he returned to his starting point without incident.

Gaubert Flies Across Country.

ON Saturday last Gaubert made a start for a flight to Tours, using a 28-h.p. Astra-Wright biplane. Getting into the air at 7.40 he reached Chateaudun 50 mins. later. There, being confused by the railway fork, he followed the Brest line and found himself over Nogent, where he made a half-turn ultimately alighting at Droue, where he was greeted by M. Max Richard, who had followed him by road on his car. Gaubert proposes to continue his journey to Vendome and Tours.

More Breguet Machines for the French Army.

ON the 7th inst. Capt. Leveque visited Douai for the purpose of witnessing the tests made with three two-seated Breguet military aeroplanes before they were handed over to the French Army. He was taken for a trial trip in each one by M. Breguet and afterwards rose to a height of 400 metres in 4½ mins., then making a cross-country trip from Brayelle to Quiery, Lens and Douai. Capt. Leveque was also taken for short trips by two of the military pupils at the Breguet School.

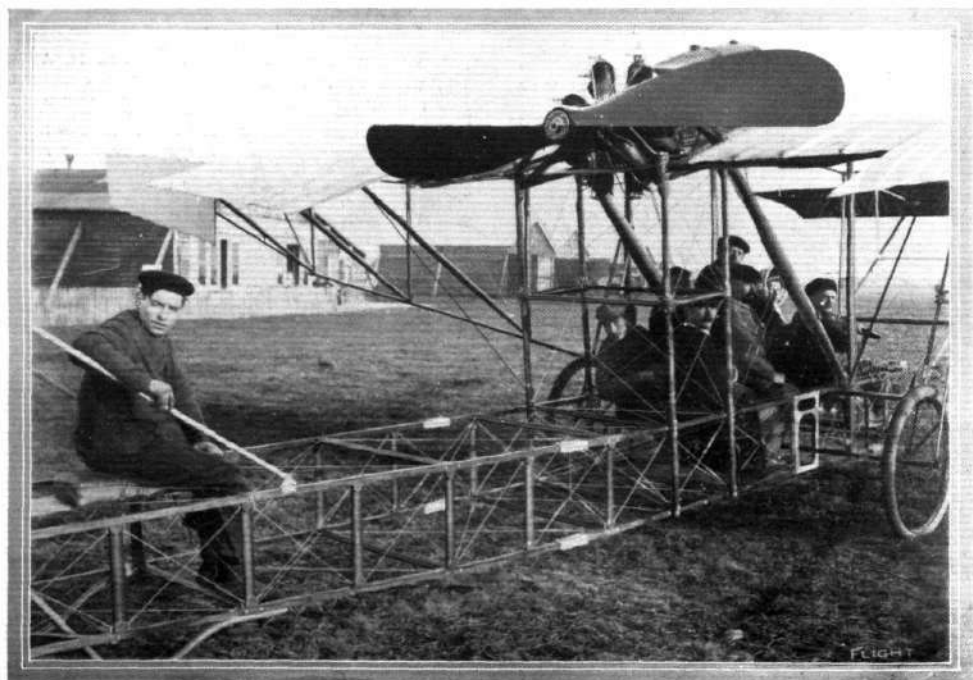
Pau to Mont de Marsan and Back.

LEAVING the Blériot School at Pau, the aviator, Bague, on the 7th inst., accomplished a flight of 150 kiloms., flying across country to Mont de Marsan and back in 1 hr. 40 mins., a height of 600 metres.

At Pau.

THE constant work in progress at Pau, especially at the Blériot School, where alone there are over fifty machines in almost continuous use, renders flying in every direction of the surrounding country quite a matter of course with the inhabitants. First one and then another aviator takes the air, and in all directions they are seen flitting about first on one type of machine and then on another. On the 7th inst., Wyss, on his Gnome-Blériot, was carrying out some flights over Pau at about 1,000 metres up, planing down in fine style to *terra firma*. Aubrun, who has now joined the Deperdussin School, on one of the very successful Morane machines, was also flying over the town at a similar height. Wyss in the meantime was executing an altitude flight, rising to 1,800 metres followed by a fine landing.

Bague on Thursday indulged in a trip across country for about 100 kiloms. Starting from the aerodrome, he alighted at Sanguis, between Mauleon and Tardets. Bague, having remained at Sanguis for the night, flew back to Pau the next day, when it appears that, having no compass to guide him, he took a southerly direction by error and thereby lost himself, passing during this period over the balloon "Limousin."



The new 4-seated Blériot monoplane, with the 8 passengers in their places as carried in the air at Pau by M. Lemartin for about eight minutes. Note the eighth passenger, who is sitting behind on the fuselage. The general construction from behind is well seen in this view.

When alighting to ascertain his whereabouts at Sanguis, on the highway, he broke a wheel, which prevented him re-starting from the roadway until repairs were effected. Altogether his outing totalled to a distance of about 250 kiloms. During the afternoon Morin and Bague both attained a height of about 1,200 metres and Lieut. de Rose carried some military passengers for cross-country flights.

Sunday, being somewhat of a holiday for M. Blériot, he thought he would visit his family, who are at Bagneres de Bigorre, and without fuss, but simply selecting the air as the most convenient and quickest method of travel, and in spite of a steady rain which had started to come down, he started off on his two-seated tandem machine, although unaccompanied by a passenger. Having spent a few hours with his children, he returned to his mount in the field in which it had been resting and was soon away on his journey back to Pau. This truly gives a practical illustration of one of the advantages of the aeroplane. By rail at least three hours would be occupied in travelling to Bagneres, and by motor car it would take not less than 1½ hours.

Military Aviators at Buc.

On the 8th inst. Lieuts. Chentun and Binda arrived at the Maurice Farman Aerodrome after a flight from Satory via Saint Cyr, Trappes and Voisin, finishing up with a smart landing from a height of about 300 metres. The next day's work was extremely brisk in all directions, especially towards the evening, seven of the machines rising in an exquisitely clear sky to a considerable height; two of the pilots, Renaux and Pierre Marie, disappearing almost to specks. Mounting steadily, Pierre Marie at 1,100 metres finished his ascent and returned gracefully to earth. Renaux, in the meantime, had followed him up and continuing his ascent reached 1,350 metres, from which point he made a magnificent spiral *vol plané* back to the ground. During the afternoon Lieut. Menard on his Henry Farman, with Captain Chanac as passenger, also arrived from Satory, where Captain Chanac's R.E.P. machine was taken over. In alighting from his journey Menard made a splendid *vol plané* from about

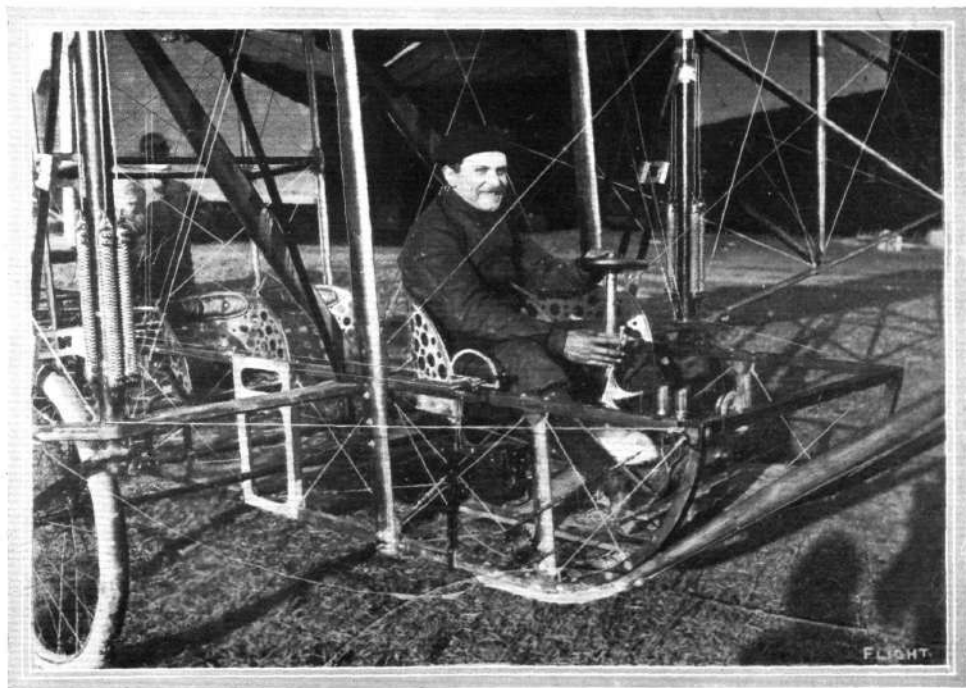
700 metres. Renaux, in addition to his height essay, also made fine practice on his Maurice Farman biplane, having in mind the Paris-Puy de Dome Michelin prize, in which he hopes to take a hand shortly. Carrying a passenger to a considerable altitude he cut off the motor and planed carefully to earth, to the exact spot that he had previously designated. Barra, who has had a new motor fitted to his machine, was getting a good speed up to 100 k.p.h. Fuel consumption being a very important consideration for long distance military work on an aeroplane, it is satisfactory to know that this is receiving careful attention with the constructors, and in this connection Pierre Marie, with one of the military Maurice Farmans, has just annexed a special bonus of 2,500 francs for low fuel consumption.

The Prix des Amendes.

THE five prizes of 500 francs each recently offered by the French Commission Sportive Aeronautique, for the first five debutante aviators of any nationality who should cover 50 kiloms. in a closed circuit, of a maximum of 10 kiloms., under proper observation, have already been secured, viz., by (1) M. Jacques Labouchere, 52½ kiloms. in 47 mins. on a Zodiac biplane on the 9th inst.; (2) M. Vedrines; (3) Soupe carrying Mdlle. Jane Herveu; (4) Morin; and (5) M. J. Cei. Each pilot must have had his certificate at least 90 days prior to any attempt for these prizes.

At the Tellier School.

EXCELLENT work is being carried out at the Tellier School at Etampes, where Capt. Alexandroff, of the Russian Volunteer Corps, has been taking over one of their machines. Piloted by Becue, with the Captain as passenger, a useful weight of over 230 kilogs. was satisfactorily carried. During this test Prince de Nissolle was making a cross-country journey over the town of Etampes, which he crossed twice, then returning to the school with a fine *vol plané*. On the next day, Wednesday, the Prince was up for half-an-hour, again across country, this time passing over Boissy-le-Sec, with the Curé of Boissy as passenger. On Thursday he made an



THE NEW 4-SEATED BLÉRIOT MONOPLANE.—M. Lemartin, who carried the 8 passengers, in the pilot's seat. The skids and forward construction are clearly seen in this picture.

attempt for the Prix des Amendes, but owing to the violent wind gave up at 20 kiloms.

Work at Issy.

GRANDSEIGNE is amongst those aviators in France who favour the somewhat acute *vol plané*. On Tuesday last week, at 200 metres up on his 50-h.p. Anzani-engined biplane, he made a descent in 1 min. 20 secs. Cei, on a similarly-engined machine, in rising to an altitude of 900 metres, steered his course over the Trocadero and the Place de l'Etoile, returning to Issy after a journey of about 25 mins., much to the relief of those on the ground, as he had started away quite happily with something under a dozen litres of fuel in his tanks. On Thursday, J. Labouchere secured the first of the "Amendes" prizes.

More Military Aeroplanes being Acquired.

In addition to the Tellier machine taken over for Russia, ready mentioned, at Mourmelon last week, the Military Commission took over three Henry Farman under Series I specification, one of which without the smallest difficulty gained the 2,000 francs bonus provided for under the contract. Another machine under Class II successfully accomplished its requirements during a 30 mins. flight.

Doings at Mourmelon.

At the Antoinette School, Gobe and Pierre Hospitalier were trying a military aeroplane with a superb flight of 40 mins. at 300 metres altitude, later on, flying a second military machine with a flight of 50 mins., followed by a fine *vol plané* from 350 metres in 7 mins. Madame Marthe Niel on Thursday was at the Antoinette School up for 30 mins., at a height of 100 metres with a new Labor-engined monoplane.

Mr. Henry Farman, on the same day, was at work with one of the 50-h.p. Gnome-engined small type machines, both flying by himself and with a passenger, and being timed at varying speeds of 102, 103 and 104 k.p.h. Lieut. Mailfert took charge of one of the Henry Farman military machines, rising to 300 metres in 5 mins., afterwards flying for 30 mins. with a passenger. On the same day Lieut. Remy made a magnificent *vol plané* from 1,000 ft. in the air, with the motor stopped.

At the Nieuport School, with a 50-h.p. Gnome-engined machine, some good speeds have been made, the 100 k.p.h. with a passenger having been passed.

Some Henry Farman Points.

MR. HENRY FARMAN has in contemplation the founding of one of his schools at Pau.

The Coupe Archdeacon has been awarded for holding

AEROPLANE SCOUTING IN ACTUAL WARFARE.

WHAT no doubt must be regarded as the first time of using an aeroplane in actual warfare, is reported in connection with the Mexican rebellion now in progress. Mr. Harry Harkness, on his Antoinette, under an arrangement with a patrol of American cavalry, which is watching the Mexican boundary to prevent any of the insurgents crossing into the United States, flew from San Diego, California, to Juana, a distance of about 40 miles, carrying with him a message to the patrol. In connection with this work the American War Department have granted £5,000 in order that Lieut. Foulois, U.S. Army, may carry out some practical tests with the Government aeroplanes of scouting in the neighbourhood. Mr. Glenn Curtiss, who is at San Diego, where he has established an aviation school, has once more offered his services, with three of his machines, to the War Department for scouting experiments.

Mr. Charles Hamilton on his aeroplane is, however, the

German Airships.

A CONTRACT has been concluded for the purchase by the German War Office of another Zeppelin airship, subject to certain very onerous conditions of speed being carried out. As for some time it has been thought that this form of rigid airship was not favoured by the Government, it is a distinct score on the part of the Zeppelin Company to have overcome the difficulties which have been put in its way. "Zeppelin I," which was taken over by the Government in November, 1908,

during 1911 to Mr. Henry Farman, by the Aero Club of France, for his flight of 350 kiloms. on December 31st, 1910.

From Berlin we learn that the military commission has at Johannisthal purchased two Henry Farman biplanes, belonging to Frey. They are to be transferred at once to Doeberitz Camp.

Peeters Out of the Hospital.

THE Belgian aviator Peeters is now making satisfactory progress and at the beginning of this week was able to leave the hospital at Mouscorn. He hopes in the course of several weeks to be quite fit again and able to recommence flying.

Progress in Italy.

CAGNO has, at Pordenone, been making some good cross-country flights with his light Henry Farman, at the aviation school in that district, prior to his giving a series of exhibition flights at Venice. At the same school, already seven pilots have qualified, the last being Alberto Lettis, on a Biériot.

Competitions in Italy.

Two big competitions are being organised in Italy to take place next year. One is the cross-country flight from Turin to Rome, with stops at Bologna and Florence, for prizes of £6,000. The second is an ambitious competition across the Tyrrhenian Sea from Sardinia to Rome. It is proposed that the starting point should be Sassari, which would make the total distance to be covered 250 kiloms.

Another Injured Aviator Convalescent.

CAPT. M. DE BASKINE, of the Russian Army, who on July 8th last met with a somewhat serious accident at Etampes, has now sufficiently recovered to journey to Nice where he hopes to entirely re-establish his health. He has every intention of taking steps to qualify for his pilot certificate. He then proposes to resume his aviation work again more keenly than ever.

More Good Work by McCurdy.

LAST week Mr. J. D. McCurdy, the hero of the Key West-Havana cross-seas trip, made another successful essay. Rising from Camp Columbia near Havana, he flew twice round Morro Castle, 12 miles distant, in an attempt to secure the Havana City Council prize, which has been offered for this flight and which is open until February 28th for the best performance. Mr. McCurdy, in view of his very plucky attempt at the Key West-Havana flight, does not lose the prize money which was offered by the *Havana Post* for the attempt. It is announced that he has been paid the money last week, the presentation being made by the Cuban Vice-President, Senor Zayas.

first man to have actually flown over a town whilst under siege, he having on Friday of last week passed twice round Ciudad Juarez in Mexico, which is under siege by the Mexican insurgents, and then returned across the American frontier with a graphic account of the conditions of the city which he had observed. Although it was arranged with the attacking Mexican force that the aeroplane was not to be fired upon, there was nothing known as to what would be the behaviour of the besieged Mexicans. Probably had they not been so unexpectedly scared by the sight of Hamilton's biplane, "Black Demon," suddenly appearing over their heads, giving visions of bomb-dropping, he might possibly have had a different tale to tell than the successful return across the border, as with extraordinary but almost foolhardy enthusiasm, he descended quite low over the besieged town, certainly to within 400 ft. of the troops.

is now stationed at Metz, whilst "Zeppelin II," which was acquired in August, 1909, was, it will be remembered, completely destroyed at Weilburg last year.

"Parseval VI" made a successful trip on Saturday last. Starting from Johannisthal about mid-day, with eleven passengers, she passed over Berlin and followed the course of the River Havel, arriving at Potsdam at 1.11 p.m. After cruising around over the town and several of the palaces she returned to Johannisthal at 2.30 p.m.

OVER 60 MILES PER HOUR WITH A PASSENGER.

SPLENDID new records have been put up at the Deperdussin Aerodrome, Rheims, on Saturday and Monday last by M. Busson, who, on the first day—on a Gnome-engined Deperdussin military type monoplane—carrying a passenger, covered 48 kiloms. in 30 mins. 36 secs., equal to 98.756 k.p.h., and on the Monday 100 kiloms. in 1h. 1m. 32s., the distance for the hour being 97.508 kiloms. During this flight Busson put up new records for intermediate distance times as follows: 10 kiloms. in 6 mins. 30 secs. (old record, Laurens, 7 mins. 31 secs.); 20 kiloms. in 12 mins. 51 secs. (old record, Laurens, 15 mins. 14 secs.); 30 kiloms. in 19 mins. 15 secs. (old record, Laurens, 22 mins. 56 secs.), and 40 kiloms. in 25 mins. 30½ secs. (old record, Vidart, 29 mins. 40 secs.). After covering 50 kiloms. M. Busson was compelled to shut down owing to a thickening fog, which rendered it unsafe to continue.

Busson, thus foiled in his intention of flying for the hour record, made a second attempt on Monday, and was splendidly successful, beating his own records of the Saturday with considerable ease. As already mentioned above, he covered

100 kiloms. in 1h. 1m. 32s., giving a speed of 98.739 k.p.h., and in the hour his distance was 97.508 kiloms. The quickest 10 kiloms. circuit was 6 mins. 4½ secs. After completing the 100 kiloms. he descended and took up three passengers, including Lieut. Mailfert, and made a further circuit of the aerodrome. The following are the intermediate times for the new records:—

				Previous records.			
kils.	h.	m.	s.		h.	m.	s.
10	...	0	6 5	Busson	...	0	6 50
20	...	0	12 13½	"	...	0	12 51
30	...	0	18 20	"	...	0	19 15
40	...	0	24 24½	"	...	0	25 30½
50	...	0	30 33½	Laurens	...	0	38 19½
60	...	0	36 39½	"	...	0	45 51½
70	...	0	42 52½	"	...	0	53 29½
80	...	0	49 7½	"	...	1	1 8½
90	...	0	55 18	"	...	1	8 51½
100	...	1	1 32	"	...	1	16 51

THE JULES NOEL AND DE LA TORRE FATALITY.

It is indeed unfortunate that two more deaths have to be recorded in connection with the progress of aviation, and it is the more regrettable inasmuch as these are, it would appear, the direct result once more of unnecessary trick-flying on the part of the pilot. Many of the previous fatalities have been, as our readers are aware, attributable to "circus" performances, and in the death of M. Jules Noel and his unfortunate passenger M. de la Torre, on Thursday of last week, another addition has to be made to this category. The accident occurred at the Sommer School at Douzy, when Noel, after a splendid flight of an hour with his passenger, decided to plane to earth. With more than exceptional risk he started his descent, for which he has created a considerable name, at an extraordinarily sharp angle. Evidently miscalculating his distance from earth, the biplane struck

the ground at a terrific speed, both he and De la Torre being killed.

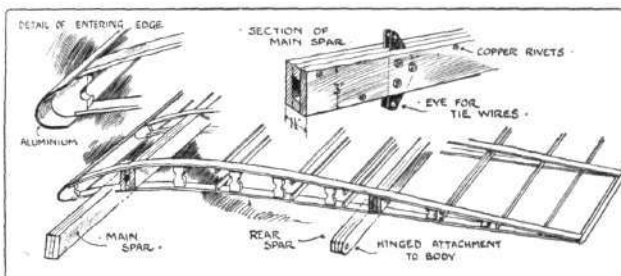
It is noteworthy that only the previous day or so M. Noel had been publicly admonished by M. Sommer for his extremely hazardous methods of alighting in this manner. Much as we admire the splendid work that such aviators have done, it is to be sincerely hoped that such endings will teach their lessons more and more to others who are inclined to take unnecessary risks and thereby swell the list of fatal accidents already sufficiently long.

This aviator must not be confused with M. Andre Noel, who took part in the big Circuit de l'Est, who is also one of the chief pilots at the Sommer School at Douzy. M. de la Torre was an Italian naval engineer about 24 years old and had been himself flying at the Sommer School.

HANRIOT WING CONSTRUCTION.

No part of the modern monoplane is of more importance or less visible than the framework of the wing, and the accompanying sketches illustrating the Hanriot wing-construction will doubtless interest many of our readers. The outstanding features of the system are the two main spars, that in front being a very substantial box-girder, 3 ins. in depth by 1½ ins. in width. It will be observed from the detail sketch that the sides of the girder are secured to the top and bottom pieces by copper rivets after being glued. The method of letting the steel shackle-plates for the tie-wires into the spar is also interesting and is clearly shown in the sketch. The rear spar of this machine is built up on the three-ply principle and is of smaller dimensions. It is, of course, obvious that the front main-spar is also fundamentally of three-ply construction, the only difference being that it has a hollow core, which thus introduces the box-girder principle. The construction of the ribs is clearly illustrated in the sketch. It will be observed that the top and bottom laths have their camber maintained by light distance-pieces at intervals, and that the fabric is supported between the ribs, which are situated about 12 ins. apart by light laths arranged parallel to the spars. The front of the plane is formed by a sheet of thin aluminium, which makes a light, smooth, and blunt entering edge. This entering edge is situated about a foot in front of the main spar, which is itself 3 ft. 4 ins. in front of the rear spar. Behind the rear spar the rib extends to a

distance of about 2 ft. 7½ ins. The front main-spar is attached rigidly to the body of the machine by steel straps that embrace the spar and the wedge-shaped blocks on which it



rests. These wedge-shaped blocks are supported by a transverse girder in the body and give the set of the dihedral angle to the wings.

For additional security a pair of long bolts tie this support to the bottom of the body. The rear spar is merely hinged to the body, as it necessarily requires a flexible attachment to facilitate the warp. Each wing weighs complete with fabric 48 lbs.

An Aerodrome at Kiel.

AN aerodrome on modern lines has been laid out and is in active preparation in the neighbourhood of Kiel, at Kreushagen. Already five hangars have been erected and half-a-dozen more are being proceeded with. Three machines

are already on the ground, these being monoplanes belonging to Herr Nordhust and Herr Heine, and a biplane belonging to Herr Kohlscheen, and three more are due to arrive. Prince Henry of Prussia is taking a lively interest in the progress of the concern as are also the civil and military authorities.

CORRESPONDENCE.

*. * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

Correspondents communicating with regard to letters which they have read in **FLIGHT**, would much facilitate ready reference by quoting the number of each such letter.

NOTE.—Owing to the great mass of valuable and interesting correspondence which we receive, immediate publication is impossible, but each letter will appear practically in sequence and at the earliest possible moment.

"Farman Type" Aeroplanes.

[1065] I have received a letter from the Farman Brothers, who have done so much to bring aviation to its present stage, in reference to the publicity given lately to copies of their machine in this country.

They ask me to point out in the Press that whilst they have taken no steps to stop the copying, they think that the limit is reached when in certain notices of copies of their machine a statement appears that "this type of flying machine holds most of the important records for duration flights, passenger-carrying and cross-country work."

The Farman Brothers ask me to point out that the International records for duration in the air and distance are held by the Henry and Maurice Farman machines respectively, and that it is not correct to describe any unlicensed copy of their machine as being of their types.

February 8th.

G. HOLT THOMAS.

Endurance Prize.

[1066] Mr. E. Manville is to be congratulated not only for giving a very liberal prize, but for the fact that an endurance prize will do more good to aviation than several prizes awarded for speed alone. It is to be hoped that other public-spirited persons who contemplate giving prizes will follow Mr. Manville's lead.

I have been considering the possibilities of an endurance prize, and think one could not improve upon the following scheme, the winner to be the one who gains the greatest number of marks awarded on the following plan:—

40 marks for speed.

40 marks for the lowest petrol consumption per unit of weight.

20 marks for the lowest oil consumption per unit of weight.

The unit of weight would be taken on the combined weight of the aeroplane, engine, aviator, passenger, petrol, and everything; in fact, the weight in the air.

The marks for each aviator are easily found. The highest marks under each heading would be given to the best man, and the others would receive marks in proportion.

The more you consider it the more you will discover all kinds of opportunities for securing useful information. The monoplane and the triplane could be fairly compared to see whether there is any advantage of the one over the other; the chain drive compared with the direct drive; plane areas. In fact, there is no limit to the important knowledge one could secure. I would very much like to be favoured with the opinion of yourself and your readers on this scheme.

H. V. ROE.

Flight Golf.

[1067] Some time ago you suggested the game of "Flight Golf." I have not heard whether it has made much headway and think that there are some disadvantages about that particular game; no doubt you had in your mind at the time the great popularity of ordinary golf.

Though not so popular now, the game of bowls has long been known and seems to me particularly suitable for a substitute—there is plenty of bias on the "bowls!"

A "jack," in the shape of a pilot flyer, could be started in the ordinary way and would have the advantage of proving that the flight was possible, it would not be necessary then to encounter a side wind. Not nearly so much ground would be required for this game, an important point, as most model enthusiasts know, also there would be plenty of time for winding up as this could be done while necessarily waiting for one's turn.

I should very much like to hear whether any of your readers have tried "Flight Golf," and if they noticed the drawbacks to which I have alluded.

Thatcham, Berks.

E. T. HAYNES.

Pendulum Stability.

[1068] Mr. Kelham has curious ideas as to what a pendulum is, according to his letter (1027), which appeared in the issue of your indispensable paper for January 21st, 1911. I have always understood that a pendulum was a swinging weight, and that a man pivoted at his armpits would correspond to a pendulum.

As to the machine "invented" by Planes, Ltd., this system of stability was discovered and found wanting by Blériot, Saulnier, and Farman (monoplane), long before this firm was heard of, and the patent taken out by this firm was for a device to raise or lower the bottom plane of a biplane up and down the struts, and not to obtain stability by a low centre of gravity, although the illustration to the specification showed a machine with all the weight under the bottom plane. Also, machines of this type are notoriously difficult to handle.

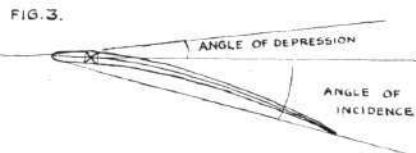
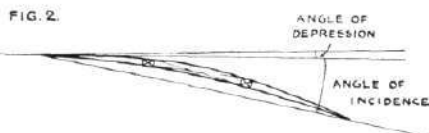
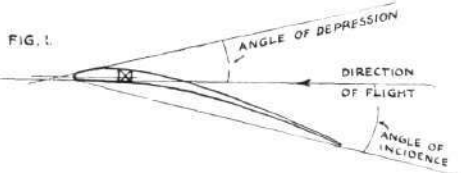
Croydon.

R. H. BUCKWELL.

Dipping Front Edge.

[1069] I should like to make a few remarks about the theory of the dipping edge of an aerofoil, through your valuable correspondence columns.

First of all, how was this idea of the dipping-edge originated? Surely it was copied from the bird's wing. Now this has to be of some appreciable thickness to take the force—it is in fact a little cantilever. In my opinion the dipping-angle found is of no importance, and that it is part of the stream-



line formation necessary to eliminate excessive head resistance of the girder. Figs. 1 and 2 illustrate more clearly what I mean.

Now as the centre of pressure is close to the leading edge, the phenomenon of the dipping-edge resulted.

To further illustrate my theory:—On the Antoinette machine the girder is about the middle of the plane—and the dipping-edge nearly disappears! See Fig. 2.

Barrow-in-Furness.

CLAUD W. PIDCOCK.

[Our correspondent appears to somewhat misunderstand the conception of a dipping front edge. It is determined by the attitude of the plane in flight, not by its camber. Any cambered plane can be driven through the air with a dipping front edge and the theoretical advantage of doing so we have already explained.—ED.]

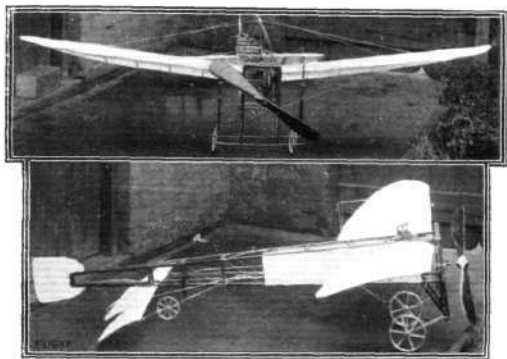
MODELS.

A Large Blériot Model.

[1070] I am sending you two photos of a large Blériot model I have just completed in the hope that they may prove of interest to some of your readers.

It is built to the scale of 3 in. to 1 ft. and measures 7 ft. across the wings.

The fuselage is composed entirely of ash and the wings are built up in a similar manner to the full-sized machine, and double surfaced with Pegamoid model air-c. The total weight including complete engine is just over 14 lbs.



The engine at present fitted is a rather heavy $\frac{3}{4}$ -h.p. petrol engine which weighs complete with coil, carburettor and small accumulator, 8 lbs.

As this is not quite powerful enough I intend fitting a 1-h.p. engine of lighter build, which will weigh less than the smaller engine.

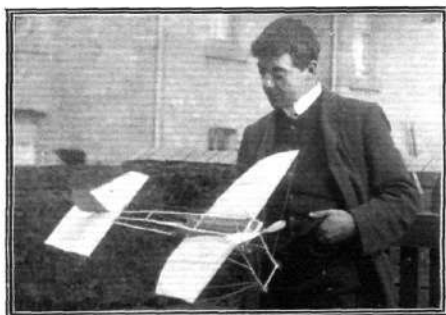
The whole of the work including building up of engine from castings and the carving of propeller has been carried out by me with the assistance of two engineering friends.

Carlisle.

E. TEMPLE ROBINS.

A Tellier Monoplane.

[1071] Here is a photograph of a monoplane which I have just completed. It is of a "Tellier" racing type. The body is of strong oak strengthened by very thin steel wire. Its span is about 3 ft. and length over all 3 ft. 4 ins. In weight all told the machine tipped the scale at 4 ozs. The leading plane is of thin cane covered with silk and it has a powerful supporting surface. The tail plane has an area of about $\frac{3}{4}$ sq. ft. The elevator and rudder are controlled by a catch in the front. The propeller of 10 $\frac{1}{2}$ ins. diameter is driven by



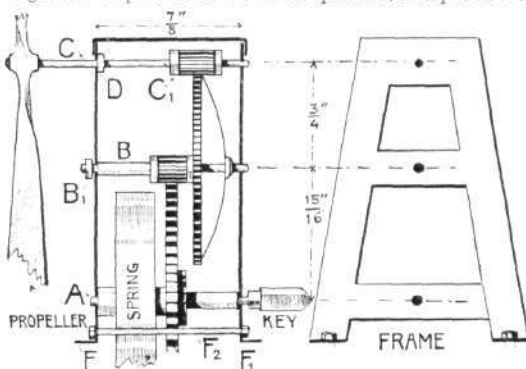
an elastic motor of 40 ft. of $\frac{1}{16}$ in. elastic which I purchased from the Cycloplane Works in Leeds and the motor is geared at 4 to 1, giving an average speed of about 1,600 r.p.m. The chassis is of cane which by its flexibility satisfies as a shock-absorber. The wheels on the carriage are $\frac{1}{4}$ in. diameter. The machine has been very successful, flying with great stability, and without the engine it was a wonderful glider.

Thanking you and your paper for the valuable information I have received therefrom,
Masborough. "AN ENTHUSIAST FROM THE BROAD ACRES."

Clockwork Motor.

[1072] In reply to query 858 (R. Oates, Birmingham)* for details of a clockwork engine for model aeroplane, I enclose details of sketches of one I have made from an old alarm clock and used successfully.

The parts required from clock are—(1) main driving spindle with spring, (2) intermediate driving spindle and wheel. Also construct another spindle which is to become the screw-shaft. Now a special framework must be constructed; for this get a No. 22 gauge sheet of brass (or aluminium). It will be best to cut out both frames together *borrowing* and using a metal cutting fret-saw, that is to say a close toothed fret-saw held in an ordinary fret-saw frame. To hold the plates together, at the edge in one or two places they should be soldered down, making framework as sketch. The holes for the spindles should all be just the same diameter as those in the clock from which they came, that is with the exception of the hole for spindle, C in frame F nearest to screw (see sketch) which is on the left-hand side of motor. This hole must be a little larger for this reason, that a new spindle C is to be made because the old one is not long enough to attach tractor screw or propeller to. This new spindle is to be made from a nice piece of bright steel perfectly straight (I used a bicycle spoke). A screw thread is cut at the propeller end, say a quarter of an inch long and a small nut run on it; three-eighths of an inch below this solder on a small plate; now carefully knock off of the old spindle the wire pinion C¹; this pinion is all you require to use (the cog wheel will not be wanted). Next cut a tiny piece of brass tube off or bend up a piece of sheet metal to form a ring or collar D to go on spindle C. We can now begin to put the motor together. Slip the frame F over the spindle C, then put on the



collar D and solder it into place. Next drive on and secure the pinion C¹. This latter should fit without any fastening, but if it shows the least sign of being loose a touch of solder will make it fast. If you look at my sketch you will see that the spindle B is provided with a collar B¹ placed outside the frame. This may not be necessary, but if the spindle is not provided with a shoulder to press against the frame F¹ there will be nothing to prevent the spindle sliding in the frame, so this collar B¹ is put on to prevent this. You can easily make it by filing off the teeth of the small cog wheel which was found on the spindle in the same position, in fact when it was in the clock it is one of the cogs which was used to give motion to the hands. Having got all this done, secure the frame F¹ by two distance pieces F². These are of course the original bars which separated the clock frames; over one of these bars the spring loop is to be slipped. Now put the frames F and F¹ together with the wheels between them. All that is required to complete the motor is the stay piece which is shown in sketch. It can be cut from the same thickness sheet brass as the frames and the ends are turned down over the ends of the frames and soldered in place. The motor is now finished.
Caincross.

"STRUTS."

Kite Lines.

[1073] I would be greatly favoured if some reader could give me information as to the position for fixing the four leads.

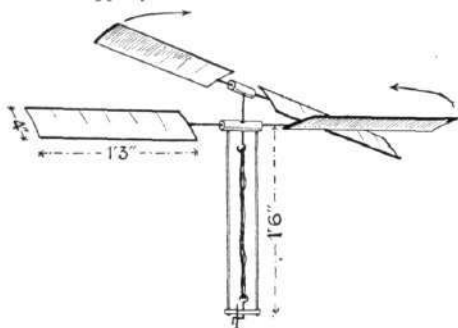
forming the bridle of a Cody kite. I may add that I have a book on "Practical Kites and Aeroplanes," and it does not give the information except for towing and lifting purposes and as I have smashed two without getting them to any height I do not care to risk a third.

Leeds.

A. S. ROBINSON.

Helicopters.

[1074] Seeing your article on helicopters in November, I should like your opinion on the model I have constructed. It consists of four planes arranged as two-bladed propellers, one above the other and turning in opposite directions at equal speeds. For simplicity I have fixed the lower planes to the elastic motor which, of course, revolves at the same rate as the spindle and upper planes it drives. Of course, in the actual



machine one spindle would continue through the other while the engine frame, &c., would remain stationary. The reason I write is because the model lifts easily when the planes revolve at the same rate that they should lift when travelling in a straight line, so therefore I see no reason why the full size machine should not be constructed. The rough drawing of the model may explain better.

Harrington.

F. H. STIRLING.

[Model helicopters of this variety have long been known to be successful; the trouble begins when an attempt is made to substitute a practical engine and car for the skeleton "body" of the toy.—Ed.]

Model Drawings Wanted.

[1075] On behalf of the Eyre Crescent Model Aero Club I am writing to ask if any of your readers interested in model aeroplanes would be good enough to send me some scale drawings of some models. By putting this letter in your paper you will greatly oblige me.

W. J. C. MEREDITH FIDDES, L.W., Secretary.

2, Eyre Crescent, Edinburgh.

Model Aero Club, Bermondsey and Camberwell District.

[1076] C. J. Bonner, 39, Barkworth Road, South Bermondsey, S.E., is desirous of becoming a member of a model aero club in or near this district.

PUBLICATIONS RECEIVED.

Proceedings of the Rugby Engineering Society, Session 1909-10. Vol. VII. Rugby: The Rugby Engineering Society. Price 10s. 6d.
Der Maschinen- und Vogelflug: Eine historisch-kritische Flugtechnische Untersuchung. By Josef Pepper-Lynkeus. Berlin W.: M. Krayn.

Moedebucks Taschenbuch zum praktischen Gebrauch für Flugtechniker und Luftschiffer. Berlin W.: M. Krayn, Kurfürstenstrasse 11.

Catalogues.

The "Clair" Silencer. J. C. Lyell and Co., Ltd., 113, Great Portland Street, W.

The "M. Innes-Dobbie" Indicators for all Requirements. Dobbie, McInnes, Ltd., 57, Bothwell Street, Glasgow.

Petrol Engines of 1911. White and Poppe, Ltd., Coventry.

The Wright Flyer. The Wright Co., Dayton, Ohio, U.S.A.

"Fox Facts": Fox Marine and Aerial Motors, 1911. The Dean Manufacturing Co. (South Cincinnati), Newport, Ky., U.S.A.

IMPORTS AND EXPORTS, 1910-11.

AEROPLANES, airships, balloons and parts thereof (not shown separately before 1910).

	Imports.		Exports.		Re-Exportation.	
	1910.	1911.	1910.	1911.	1910.	1911.
January...	2,516	1,196	750	1,088	550	Nil

Aeronautical Patents Published.

Applied for in 1909.

Published February 16th, 1911.

39,183. BALASSANIAN. Aerial machines.

Applied for in 1910.

Published February 16th, 1911.

2,395. W. LEWITSKY AND P. LYSSOW. Flying machine.
14,704. I. ETRICH. Flying machines.
19,221. J. MATERNE. Flapping-wing machines.
22,212. H. FARMAN. Preventing damage to and stopping aeroplanes on coming to ground.

Index and Title Page for Vol. II.

THE Index and Title Page for Vol. II, January to December, 1910, of FLIGHT, has now been published. Any reader may obtain one by sending 2d. to the Publishers, 44, St. Martin's Lane, London, W.C. After February 28th, a charge of 6d., post free, will be made.

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DIARY OF COMING EVENTS.

British General Events.

Mar. 24-April 1. Olympia Aero Show.
July .. Daily Mail Round England Contest.
July .. Gordon-Bennett Aviation Cup Contest.
Oct. 31 .. Close of British Michelin Cup.

British Clubs and Associations.

Feb. 22 .. "Plan Shape of Flying Machines. Its Relation to Control and Longitudinal Stability." By A. P. Thurston, E.Sc., at Caxton House (A.A. and M.U.).
Mar. 8 .. "Some Lessons of 1910." By Major J. N. C. Kennedy at Caxton House (A.A. and M.U.).
Mar. 10 .. Lecture by Mr. S. F. Cody (Midland A.C.).

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